THE NEWSPAPER OF INFORMATION SYSTEMS MANAGEMENT
November 9, 1992 · Vol. XXVI · No. 45 · 102 Pages · $2/Copy · $48/Year

COMPUTERWORLD

Downsizing pushes IBM DBMS revamp

Distributed DB2, AIX systems to debut in spring

BY JOHANNA AMBROSIO and MARYFRAN JOHNSON
CW STAFF

SANTA TERESA, Calif. — IBM will attempt to shore up its position in the database market with a spring announcement of its overdue AIX database manager and a major new version of DB2.

Yet whether IBM's defensive database strategy can turn the downsizing tide to its advantage is likely to be a critical question in 1993, observers said. Many industry watchers said they believe IBM has waited too long to catch all but the most dedicated IBM customers who are leaving their mainframe-based software behind.

Among the announcements expected in the May time frame are Version 3.1 of DB2, which will allow mainframes to distribute database processing among several different machines, and IBM's first foray into the AIX database world.

The AIX software, as yet unnamed and based at least partly on the database manager in OS/2 Extended Edition, will be delivered about a year later than IBM originally planned. Likewise, Version 3.1 of DB2 will not be delivered until 1994, sources said.

Users already in production with an Oracle Corp. or Sybase, Inc. database manager on their RISC System/6000s are unlikely candidates for the AIX database. Sybase, however, will offer a competing view of distributing databases across the enterprise

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PRODUCT EVALUATION
USL's Unix V 4.2 (Destiny)

NEW PRODUCT IN-SITE

Easy PC Unix

Unix System Lab's Unix System V Release 4.2 for Intel architecture PCs scored above expectations in ease of use but only about average in performance on the 486, and below par on the 386

(See New Product In-Site, page 40)

Ease of use	4.8
Ease of installation	4.5
Reliability	4.5
Ease of conversion	3.3
Performance	3.0

Ratings are based on a scale of 1 to 5, where 1 is below expectations and 5 is above expectations

Launch links ISDN 'islands'

BY JOANIE M. WEXLER
CW STAFF

RESTON, Va. — In keeping with the current spirit of political change, there is a chance that the tired definition of ISDN as "I still don't know" could metamorphose next week into "It's starting delivery now."

The long-anticipated first-phase launch of a nationwide Integrated Services Digital Network will represent links of many heretofore ISDN "islands."

This means organizations restricted by the current limited geographic availability of ISDN's dial-up, single-circuit voice, data and video service will see their potential with the technology expand significantly.

ISDN could solve a range of networking problems while emerging technologies such as frame relay and Switched Multimegabit Data Service suffer from some of the hurdles ISDN faced. Although high-speed SMDS handles voice and video well, for example, it is in the "island" stage right now.

And while packet-oriented frame relay is fairly ubiquitous, it falls short in the area of voice and video, analysts said.

For the celebratory kickoff of the National ISDN-1 public-switched digital network — dubbed Transcontinental ISDN Project '92 — 70 companies using ISDN in nearly 150 locations worldwide are hosting ISDN open houses all week to allow would-be users to view their live ISDN applications.

Many of the open house host companies said the value they are finding in ISDN is twofold: cost savings through piggybacking data and video-oriented applications on top of telephone service,

Continued on page 10

Brave new world

More than half of U.S. network access lines are slated to be ISDN-accessible by 1994

Percentage of lines planned to be National ISDN-1-accessible

	1992	1993	1994
Ameritech	24%	51%	70%
Bell Atlantic	49%	58%	87%
BellSouth	25%	41%	52%
Nynex	16%	24%	31%
Pacific Bell	44%	57%	69%
Southwestern Bell	16%	19%	21%
US West	36%	54%	59%

Source: Bellcore — CW Chart: Michael Siggins

WHERE EAGLES DARE

CIM worries don't stall USAF overhaul

BY ELISABETH HORWITT
CW STAFF

The U.S. Air Force Materiel Command is nearing the mop-up phase of a massive multiyear campaign to consolidate, modernize and centralize the information systems that support weapons systems throughout the Air Force.

However, many of the fruits of this Herculean labor may well be subsumed by Corporate Information Management, a series of U.S. Department of Defense-wide initiatives that are expected to consolidate and standardize computer systems

Continued on page 20

At A Glance

U.S. Air Force

Postmerger look at combined Systems and Logistics Commands

Paul Shahady, assistant deputy chief of staff

Size of IS department: About 300 at headquarters and field operation agencies.

Annual budget: 52% of total Air Force budget, $52 billion; IS budget (excluding personnel salaries): $425 million.

Number of employees: 126,000 (military and civilian).

Number of sites/bases served: 14 bases, each of which has a computer/communications director.

Source: U.S. Air Force — CW Chart: Michael Siggins

Justice widens probe into IBM/ISSC tie

Akers orders look into Big Blue's compliance with 1956 Consent Decree

BY MARK HALPER
CW STAFF

WASHINGTON, D.C. — A lingering charge that IBM's outsourcing business violates antitrust grounds is gaining attention. While the U.S. Department of Justice escalates its investigation, IBM is conducting its own probe under orders from Chairman John Akers.

The Justice Department's case has risen from the staff attorney level to the hands of antitrust Deputy Assistant Attorney General Mark Gidley, who, according to one industry executive, had given IBM until last Friday to respond.

Action could range from dismissing the case to moving forward with civil or criminal charges. The allegation, however, is one that has weighed on the minds of users wondering about the long-term efficacy of an IBM outsourcing deal.

"Our clients say, 'Is there a concern here that [IBM] may be out of the business?,' " said Robert Zahler, a partner at Shaw Pittman Potts & Trowbridge, a Washington, D.C., law firm that negotiates outsourcing contracts. "We tell them [IBM] responds that this is not a concern."

At issue is whether IBM's outsourcing practice breaches a 1956 Consent Decree in which the Justice Department ruled that IBM could engage only in the service bureau through a sep-

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NEWSPAPER

INSIDE

Andy Freeberg

Wells Fargo's Roy Camblin champions the bank's move to client/server computing. Page 6.

DEC's Robert Palmer confirms a plan to establish a separate PC unit. Page 4.

Del Monte, Hertz talk outsourcing with EDS and IBM, respectively. Page 14.

EXECUTIVE BRIEFING

November 9, 1992

A COMPREHENSIVE GUIDE TO THIS WEEK'S NEWS

RE-ENGINEERING

AIR FORCE MATERIEL COMMAND is in the throes of major IS consolidation and modernization projects that it hopes will be adopted as "best in class" prototypes for broader, Defense Department-wide modernization and downsizing efforts. However, DOD projects could supersede Materiel's work. *Page 1*

COLUMBIA UNIVERSITY'S Mike Marinaccio says constant user involvement is the key to a five-year re-engineering project that ties together the school's 15 colleges with client/server, imaging and TCP/IP technology. Also included is an outsourcing relationship with **American Management Systems.** *Page 71*

COMPAQ COMPUTER founder Rod Canion, who now heads a consulting firm, warns companies tackling re-engineering to be careful not to give too much control to outsourcing vendors. *Page 73*

TELECOMMUNICATIONS

WHILE THE INDUSTRY now knows ISDN will never be networking nirvana, next week's kickoff of the first phase of nationwide ISDN has users citing many viable uses of the digital telephone infrastructure finally starting to take shape. *Page 1*

USERS GAIN a little help with telecommunications planning from the heads of the **ATM Forum**, **Frame Relay Forum** and **SMDS Interest Group** at **Interop '92**. *Page 49*

DBMS

IBM WILL ATTEMPT to shore up its position in the database market with its overdue AIX database manager and a major new version of DB2. *Page 1*

CINCOM SYSTEMS revamps its Supra database management system to run under Unix and PC LANs in an attempt to play in the distributed world. *Page 15*

LEGAL ISSUES

CHARGES THAT IBM'S outsourcing business violates antitrust regulations are back in the spotlight, as the **Department of Justice** ramps up its investigation and IBM conducts its own probe as ordered by chairman John Akers. *Page 1*

ANTIDUMPING TARIFFS against Korean dynamic random-access memory should not raise prices on U.S. products, but small vendors and end users may have to shop carefully. *Page 97*

AN IBM SUIT stemming from the discovery of counterfeit cards in IBM 3174 controllers should serve as a warning to users to be certain their systems contain legitimate parts. *Page 60*

LARGE SYSTEMS

DEC OFFERS MORE flexible licensing to pave way for Alpha adoption by users. *Page 4*

DEC PRESIDENT AND CEO Robert Palmer preaches profitability through reorganization and service focus. *Page 4*

OUTSOURCING

▶**Del Monte** signed over its entire IS operation to **EDS** in a 10-year, $150 million outsourcing deal, reversing an earlier decision to keep control of its systems. *Page 12*

▶**Hertz** confirms earlier reports that it plans to outsource some of its computer operations to IBM's **ISSC** subsidiary. *Page 12*

CLIENT/SERVER

▶**Phelps Dodge** mines application development technology to position itself for client/server computing. *Page 65*

▶The move to client/server computing has been paved with a few pleasant surprises for **Actmedia.** *Page 43*

▶**Wells Fargo Wholesale Services** makes its first moves toward client/server after overcoming entrenched IS resistance. *Page 6*

▶**Sybase** is expected to outline a wide-ranging product plan for next year to alert IS managers to new client/server technology. *Page 14*

▶**Oracle** tried to get closer to Microsoft Windows users last week by uncorking Oracle Glue. *Page 14*

SOFTWARE

▶Industry pundits have mixed views on the recent **CA/Citicorp** flat-fee, enterprise software licensing agreement and its effect on future licensing practices. *Page 59*

▶**GM, Ford, Alcoa** and other heavy hitters are delving into desktop manufacturing. The process — going from CAD data to a part in just hours — can reduce product development cycle time and costs by up to 95%. *Page 77*

▶Warehouse management and logistics is a hot application area as manufacturers upgrade old systems. *Page 59*

▶Preprogrammed software agents are helping companies to accomplish tasks such as automatically responding to customer inquiries. *Page 62*

ENTERPRISE NETWORKS

▶**The Pacific Stock Exchange** would like to leapfrog most emerging high-speed networking technologies next year and leverage Asynchronous Transfer Mode to create a "virtual trading floor." *Page 16*

▶Users like **Legent**'s host-based LANSpy product but say centralized LAN management does have drawbacks. *Page 49*

▶Researchers have to be thinking about how the high-speed networks of the future will change the computing infrastructure. *Page 28*

> This is the last issue of *Computerworld* you'll ever see — in this format. Stay tuned for our new look next week.

APPLICATION DEVELOPMENT

▶Developing for NT isn't much of a chore — if you already know Windows. *Page 65*

▶**Coca-Cola Enterprises** takes a PC-based decentralized approach to developing new production and materials planning applications. *Page 65*

▶**CA** last week showed its Aspen development tool at CA Technicon '92. *Page 8*

▶**Slate** ships tool kit for building pen-based programs. *Page 66*

UNIX

▶The latest version of **USL**'s Unix System V Release 4.2 scores well in user evaluations on the Intel 486 platform, but it is reportedly too slow on the 386. *Page 40*

▶**Sequent** positions its Symmetry line of Unix systems as a database server in both stand-alone client/server and mainframe coexistence schemes. *Page 62*

PC HARDWARE

▶**IBM** acknowledges that the PS/ValuePoint may take sales from the PS/2 line but says that's fine as long as people keep buying Blue. *Page 35*

▶**Cyrix**'s upgrade to turn a 386 into a 486 draws corporate interest. *Page 8*

▶Users welcome the 486SL, despite industry grumbles. *Page 8*

▶Portable computers make their mark at **Eaton Corp.**, drawing kudos from even the general manager. *Page 37*

MANAGEMENT

▶At **Corning**, CIO Harvey Shrednick says it is time to do what he is asking managers and supervisors to do — reshape his operational mode from controlling, managing and directing to mentoring, coaching and delegating. *Page 33*

▶ A recent study has found that small centers have suffered the most from cuts in staff and spending. The study notes that IS shops have found legitimate efficiencies in storage and other areas. *Page 62*

▶Vendors often say 'We can't do that' during deal negotiations. But if you haven't heard a 'no' when doing a deal, you've left something on the table. *Page 90*

▶IS managers who shy away from spending $10,000 for a VDT ergonomics study may want to consider a new $300 service. *Page 74*

▶If you feel your job is getting stagnant, perhaps you should look at what you do in your free time. It could have a real impact on your job success. *Page 83*

▶Think it's easy being married to an IS professional? Think again. How many other people computerize the signing and sending of their Christmas cards? *Page 33*

GROUPWARE

▶Will IS management string garlic around its doors when workgroup software comes a-knocking? Editor-in-Chief Bill Laberis says it could be a case of deja vu all over again. *Page 32*

▶**Lotus** ditches plans to merge its **CC**:Mail electronic mail and Notes groupware software packages. *Page 43*

▶Meanwhile, the question arises whether **Lotus** needs to redesign Notes for the long haul. *Page 43*

▶**DEC** is bringing its Network Application Support environment to Sun platforms in hopes of bridging the DEC and Sun worlds. *Page 44*

Storage

• Researchers are experimenting with high-capacity data storage techniques that use laser beams to read data — much like a phonograph. ..... Page 28

LANs

• Start-up **MicroAccess** in San Jose, Calif., is first to market with LAN hardware for 100M bit/sec. transmission. The announcement fell a week before today's IEEE meeting to discuss developing standards. ..... Page 16

• A graphical LAN-based electronic software distribution system promises to help save companies thousands of dollars in software installation costs. ..... Page 52

• **Novell** has announced new versions of its LAN WorkPlace for DOS Unix terminal emulation package. .. Page 44

• A new version of **Microsoft**'s LAN Manager for Unix targets the same market **Novell** is chasing with NetWare. ..... Page 45

E-mail

• Mail interconnectivity vendor **SoftSwitch** forges ahead with building enterprise links. ..... Page 54

• In a quest to become an enterprisewide mail provider, **Microsoft** plans a mail gateway to **Lotus'** Notes workgroup software package. ..... Page 4

PC software

• Users are interested in software suites for reasons beyond price. ..... Page 35

• **SAS Institute** unveils SAS for Windows and other desktop products. ..... Page 24

• **Lotus'** Improv for Windows, an advanced spreadsheet for modeling and analysis, is scheduled for rollout tonight. ..... Page 8

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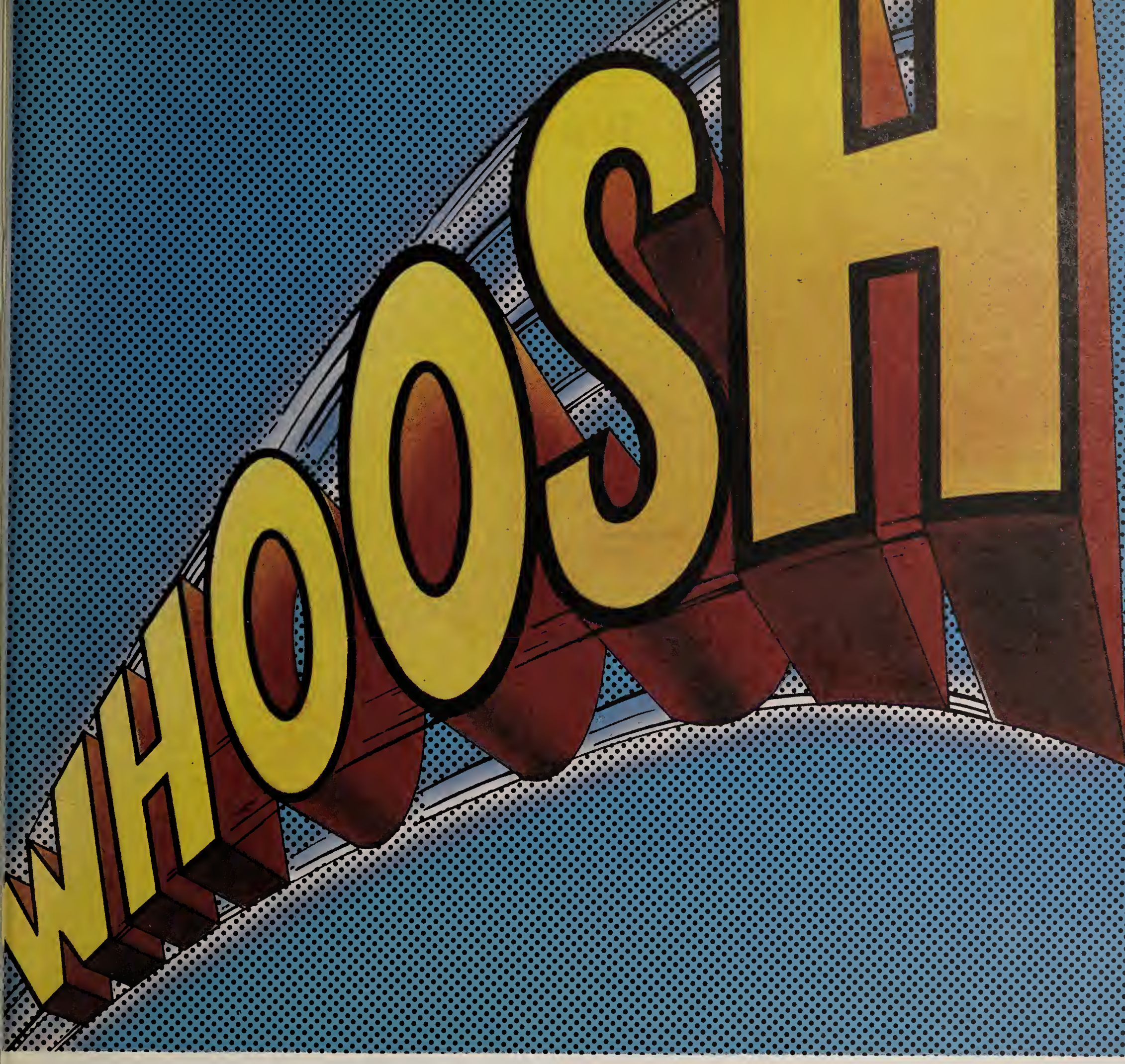

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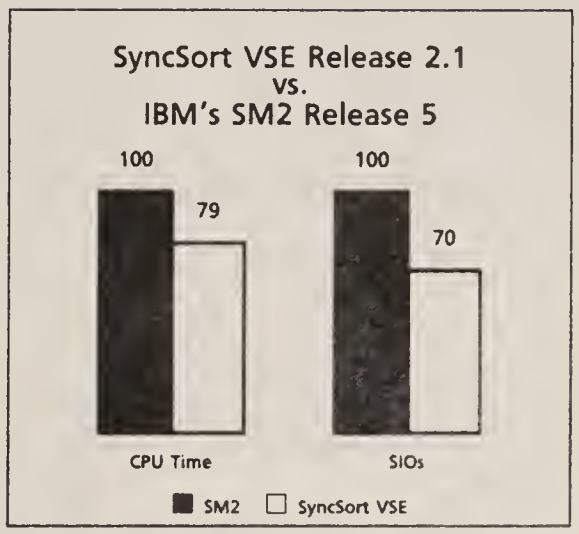

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DEC restructuring plan includes separate PC unit

BY MELINDA-CAROL BALLOU
CW STAFF

BOSTON — Digital Equipment Corp. President and Chief Executive Officer Robert Palmer confirmed last week that DEC will be reorganized around vertical and horizontal business units, including one dedicated to PCs.

The company is resolving details for eight to 10 business units, each with its own profit and loss responsibility [CW, Nov. 2]. The specifics will be made public before year's end.

"In the case of the PCs, it's a well-defined unit — they aren't manufacturing anything else," Palmer said at the company's annual meeting.

"DEC's PC business has caught fire this year, growing from 2% to 3% to close to 10% [of DEC's overall revenue] — generating sales if not profits," said Peter Kastner, vice president at the Aberdeen Group, a market researcher in Boston. It is unclear how profitable DEC will be in the face of "suicidal" price cutting.

All the business units would be serviced by horizontal product and service groups within DEC, assuming that those groups "are competitive"; if not, the units could go outside of DEC for products and services, Palmer said.

DEC's ability to service PC products nationwide under a single contract was a plus, but "DEC in the past was unable to respond quickly to PC market changes," said Gary Hensley, manager at Basic American Foods. "We're hoping they will be able to do so [with the new business unit]."

Microsoft to link Notes to its Mail

BY ROSEMARY CAFASSO
CW STAFF

BELLEVUE, Wash. — In a quest to become an enterprisewide mail provider, Microsoft Corp. is even pulling rival Lotus Development Corp. and Lotus' Notes workgroup package into its plans.

Microsoft last week disclosed that it is working with a small third-party company to develop a gateway to link Microsoft Mail with the mail component of Lotus' Notes. The gateway has not been beta-tested, although Microsoft and its partner, Phoenix Systems in Arlington, Va., expect it to be available early next year.

According to interviews with several Notes users last week, the initial market for the Microsoft Mail-to-Notes gateway may be limited. Some Notes users either do not have Mail installed or use other tools to link various electronic-mail systems together.

How many users?

There are about 1.7 million Microsoft Mail users and 150,000 Lotus' Notes users, according to "Electronic Mail & Micro Systems," a bimonthly newsletter published in Washington, D.C. However, Lotus estimated that its Notes installed base is closer to 225,000.

"My sense is that there are probably a select few who will find this really interesting," said Kevin Brown, president of the Boston Notes Users Group.

The Chase Manhattan Bank NA, for example, has several mail systems, including Microsoft Mail, but is currently linking them with Soft-Switch, Inc.'s mainframe-based connectivity software.

"We don't need it," Michael Mandelbaum, a vice president at Chase, said of the Microsoft gateway. "We don't need a direct connect."

Industry analysts said Microsoft is promoting the gateway to help further its image of linking Microsoft Mail to most other mail systems.

"It's important for Microsoft to do the politically correct thing," said Krystyna Filistowicz, director of business applications research at Dataquest, Inc. in San Jose, Calif.

Connection important

Bill Sornsin, a Microsoft product manager for Mail gateways, said the company had "not come across enough Notes installations in general ... but it is still important. It doesn't matter if you have five users or 5 million users. If people can't talk, it's important that we connect with them."

Lotus, meanwhile, was at first miffed that it was not included in Microsoft's announcement because it had worked with Phoenix Systems also.

"It would have been appropriate for them to have included us as well," said Arlene Greene, director of business development for Notes. "The issue here is this is a customer-driven product [from] people with Microsoft Mail who are adopting Notes."

John Casey, director of the advanced systems group at Phoenix Systems, said "the reason [the announcement] seemed slated toward Microsoft is they volunteered to co-fund" the development.

Alpha line ready to roll

Company's software licensing offers easier migration to new line

BY MELINDA-CAROL BALLOU
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. last week shifted its licensing practices to make it easier for users to maintain their technology investments when migrating from VAXs to the new Alpha systems, which officially debut tomorrow.

The new software licensing makes it possible to move applications that run on a single operating system across different hardware platforms. Previously, users would have to change and pay for new licenses if they switched platforms.

"You can move between hardware platforms at will, as long as you maintain the same number of users," said Mary Welch, marketing manager for DEC's corporate business practices group. "If you want to configure a cluster differently, [by] incorporating Alpha boxes, for instance, you can."

Range of systems

Users said this shift in licensing practices will make it easier to purchase Alpha hardware but probably will not prove decisive for those who were not already committed to Alpha.

"This [cross-platform licensing] is potentially a differentiating factor for DEC, but whether it is sufficiently [so] to win business that DEC would otherwise not have gotten is a real open question," said Bill Mayhew, a chairman at the Digital Equipment Computer Users Society.

DEC's Alpha platforms range from the low-end desktop and deskside systems DEC 3000 Models 400 or 400S AXP and Models 500 or 500S AXP, with workstation and server options, to the high-end DEC 10000 AXP mainframe (see chart).

A raft of software products, applications, tools and networking software from third parties and from DEC are also expected to be immediately available.

While Hewlett-Packard Co. and Sun Microsystems, Inc. are also scheduled to announce Unix workstation products tomorrow, DEC's broader strategy with Alpha allows multiple operating systems to run on the company's 64-bit reduced instruction set computing architecture — Open VMS, the Open Software Foundation's OSF/1 and Microsoft Corp.'s Windows New Technology (NT), when Microsoft ships NT next year.

Except for the DEC 10000 AXP mainframe, the systems will be immediately available running Open VMS and developer's versions of OSF/1.

Mixed options

Of 14 DEC sites contacted by *Computerworld*, five were ready to order boxes, eight were waiting to evaluate, and one was opting for a DEC competitor.

"We're very interested in Alpha both as an upgrade path for VAXs and as a platform for NT in the future," said Stanley Rose, a vice president at Bankers Trust Co., a commercial bank in New York.

"We will begin using one for basic number-crunching immediately but will wait for full VAXcluster support before moving over our production data," he said.

Alpha's arrival is too late, however, for Bill Gipps, who is manager of technical and customer support at Labatt Breweries of Canada Ltd.

"It's pretty exciting that they've got boxes running that fast, but we're not seriously considering them," Gipps said. "They're not shipping the software that I need to use right away, and we have short-term, immediate concerns which we must meet. It would have been better if they had been here six to 12 months ago." He declined to specify which system he is choosing instead.

The majority of users are interested but waiting to see what the systems offer.

"We're probably not as anxious as some people for the performance benefits of Alpha since we're not that large of an operation at the moment," said Gordy Hunt, systems operation manager at Crane Plastics, based in Columbus, Ohio. "But Alpha is the way DEC is moving, and we will ultimately move with them," Hunt said.

Alpha, beta – go

DEC's Alpha line is ready at last. A sampling of what's on tap:

Model	Pricing**	Memory	SPECmarks
DEC 3000 400 AXP	$15,000	128M bytes	110
DEC 4000 AXP	$77,000	512M bytes	135*
DEC 7000 AXP	$168,000	2G bytes	165*
DEC 10000 AXP	$316,000	2G bytes	NA

The DEC 4000 AXP offers one or two processors; DEC 7000 AXP and DEC 10000 AXP offer one to six processors. All systems except the DEC 10000 AXP will be available this week on Open VMS and in a developer's version for OSF/1; end-user OSF/1 versions for all systems and the DEC 10000 AXP will be available by the end of the first quarter, 1993.

*single processor **approximate

CW Chart: Stephanie Faucher

Babcock joins CW as technical editor

FRAMINGHAM, Mass. — *Computerworld* has appointed Charles Babcock to the newly minted position of technical editor.

Operating out of the Burlingame, Calif., office, Babcock will boost *Computerworld*'s efforts to identify and report on the most pivotal technologies shaping the information systems environment. Babcock's role will put him on the road every week, traveling to bellwether user sites, information technology vendors, conferences and trade shows.

Charles Babcock *was* Digital News' *editor in chief*

"Charlie will become an information sponge, soaking up the relevant trends and technology directions and reporting his findings to the editors here," said Bill Laberis, editor in chief of *Computerworld*. Babcock will also write a weekly technology column.

Babcock most recently was editor in chief of *Digital News*, a position he held for the past four years. Prior to that, he worked at *Computerworld* as Mid-Atlantic correspondent, senior software editor and assistant news editor.

He also worked for several daily newspapers prior to his trade press experience.

"Charlie is a journalist of first-rate integrity and quality, and we couldn't be more happy to have him back on staff," Laberis added. "He has that perfect blend of curiosity, instinct and technical understanding that this job will demand."

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NEWS SHORTS

WordPerfect upgrade set to ship

WordPerfect Corp. plans to ship WordPerfect 5.2 for Windows at the end of this month. The upgrade includes Reference Software International's Grammatik 5 grammar checker and support for Adobe Systems, Inc.'s Adobe Type Manager. Other features include 13 new WordPerfect fonts, a quick indexing and text-retrieval feature, electronic-mail capabilities, new macros and support for Object Linking and Embedding. Existing users can upgrade for $39.95.

Eo pen systems target mobile users

Eo, Inc. in Mountain View, Calif., last week announced the 2.2-pound Personal Communicator 440 and the 4-pound Personal Communicator 880. Measuring 8 ½ by 11 in. or less, the devices have fax, E-mail, cellular phone and computing capabilities in one small package. Go Corp.'s PenPoint operating system and nine applications are bundled into read-only memory. Prices start at $1,999 with shipments due in the first half of 1993.

Microsoft ships Win32S interface

Microsoft Corp. said last week the Win32S application programming interface (API) shipped with the October beta-test release of the Windows New Technology (NT) software development kit. Win32S allows programmers to write applications that take advantage of Windows NT's 32-bit properties but still run on Windows 3.1. However, Windows NT developers who were contacted said the API is too late for them to use it.

Virus detection goes on a chip

Western Digital Corp. will today unveil a microprocessor-based technology that it claims will alert users to the presence of computer viruses on 386- and 486-based PCs. Immunizer takes control of write-protect operations over hard disk areas containing the executable code to which viruses typically attach themselves and monitors the disk for suspicious activity.

Desktop standard proposal issued

The Desktop Management Task Force (DMTF) has distributed a draft specification of its API architecture to participating members and hopes to release a free reference document to the public at the Interop '93 Spring show. The DMTF is a consortium of more than 40 vendors that formed earlier this year to address desktop management issues. The draft Desktop Management Interface is said to define management links for video cards, network interface cards, fax modems, storage devices, application software and operating systems.

IBM, Harris eye federal market

IBM and Harris Corp. in Melbourne, Fla., last week announced an alliance aimed at federal customers under which they will develop real-time functions for the IBM RISC System/6000 line of Unix workstations and servers. Harris will also incorporate the upcoming PowerPC architecture into its Night Hawk line of highly secure, real-time systems.

Short takes

Cyrix Corp. is expected today to announce a processor that is plug-compatible with **Intel Corp.**'s I486SX and outperforms Intel's fastest 33-MHz version of that chip. The CX486S2/50 is the first in a family of pin-compatible 486 imitators Cyrix intends to produce.... **Lotus Development Corp.** started shipping an upgraded release of 1-2-3 for the **Apple Computer, Inc.** Macintosh last week. Ease-of-use improvements in Release 1.1 include an automated installer that allows users to launch the application with a series of mouse clicks.... Apple subsidiary **Claris Corp.** is slated to unveil its second product for the Windows market tomorrow. ClarisWorks for Windows is an integrated package that last year stole the top position in the integrated software category from Microsoft's Works.... **Concurrent Controls, Inc.** in San Francisco signed an agreement with **Novell, Inc.** to develop and distribute Novell's DR Multiuser DOS product line, which enables many users to share a single DOS-based PC.

More news shorts on page 16

Bank eschews client/server risk

Wells Fargo's wholesale unit expects 10-to-1 price/performance benefits

BY ELISABETH HORWITT
CW STAFF

Andy Freeberg

Wells Fargo's Roy Camblin *gave client/server pep talks to resistant mainframe-minded IS managers at the bank*

SAN FRANCISCO — The success of a client/server risk management application that recently went into production at Wells Fargo Wholesale Services will have a major impact on future rightsizing plans within the business unit and indeed the entire bank, spokesmen said. First, however, the unit's chief rightsizing champion, Senior Vice President Roy Camblin, had to persuade veteran information systems managers to let go of their mainframe bias.

Wholesale Services officially went client/server in August, when a client/server risk management system running Oracle Corp. database software on Unix-based Sun Microsystems, Inc. workstations went into production.

The application, which may be the industry's first automated risk management system, has so far met expectations in reducing risk because of customer default and bad debt — a hot button for federal regulators — and in realizing price/performance benefits on the order of 10-to-1, according to Alan Holroyde, the unit's group chief.

Big breaks

Major cost savings are expected from the unit's ability to offload and thereby prolong the life of depreciated hosts, eliminating the need to regularly move up to IBM's current top-of-the-line model, Camblin noted.

Client/server systems will also help the bank realize 10-to-1 improvements, at a minimum, in areas such as programmer productivity, Camblin estimated. "Payback in a matter of months, not years, is expected," he added.

Indeed, no incremental budget has been allocated to the client/server systems; they are expected to pay for themselves by offsetting the costs of mainframe CPU cycles, which the unit buys from Wells Fargo's internal service bureau, Camblin explained.

Wholesale Services is far from throwing out its IBM mainframes. A key component of the risk management application is Oracle SQL software that permits users to transparently track commercial customers' financial activities throughout the day across multiple product databases, many of which are still housed on legacy mainframe systems, Camblin said.

"A risk management success would certainly argue for the Oracle/Sun partnership" supplying platforms for other re-engineering efforts now in the works, Holroyde said. "Highly likely" candidates include a business account customer service system, which is scheduled to begin rolling out early next year, and wire transfer and automated clearing-house systems scheduled for completion in late 1993 and early 1994, Holroyde said.

A client/server success would help Camblin break down the last resistance of mainframe-minded IS managers, he said. "IS managers told me, 'If it ain't broke, don't fix it.' I said, 'As good as we are at what we're doing now, it won't get us to where we need to be three years from now.'"

Until recently, IS veterans who have logged an average of 16 years at Wholesale Services have fiercely resisted moving to a strange environment where their CICS and Cobol programming skills would be virtually useless, Camblin said.

IS managers learned the new system by implementing it, Camblin said. About half of the department has been fully trained on the risk management system, and the other half will come up to speed as the department implements other client/server applications now in the works. Even those maintaining legacy mainframe systems are learning by doing Cobol programming on a networked Sun workstation.

> TRIED AND TRUE methods "won't get us to where we need to be three years from now."
>
> ROY CAMBLIN
> WELLS FARGO

Still mainstream

Camblin has already given a series of client/server pep talks to TSO Cobol VSAM programmers. "They told me, 'This is a conservative bank; we don't want to be on the bleeding edge.' I said, 'We won't be bleeding edge, just early implementors.'"

Far from leading the pack on distributed computing, Wholesale Services will just be moving in step with competitors that are already implementing client/server applications, industry analysts said.

A recent report by Ernst & Young's Center for Information Technology and Strategy estimated that 45% of commercial banking companies currently have at least one major transaction processing application running in production mode on a distributed computing platform. That number will increase to 74% in 1995, the report projected.

Wholesale service applications make up the bulk of banks' client/server applications, according to Ladd Willis, an executive vice president at First Manhattan Consulting Group. Transaction-intensive core applications in the retail business, which handle individual customers, are still considered too bulky for client/server technology, Willis said.

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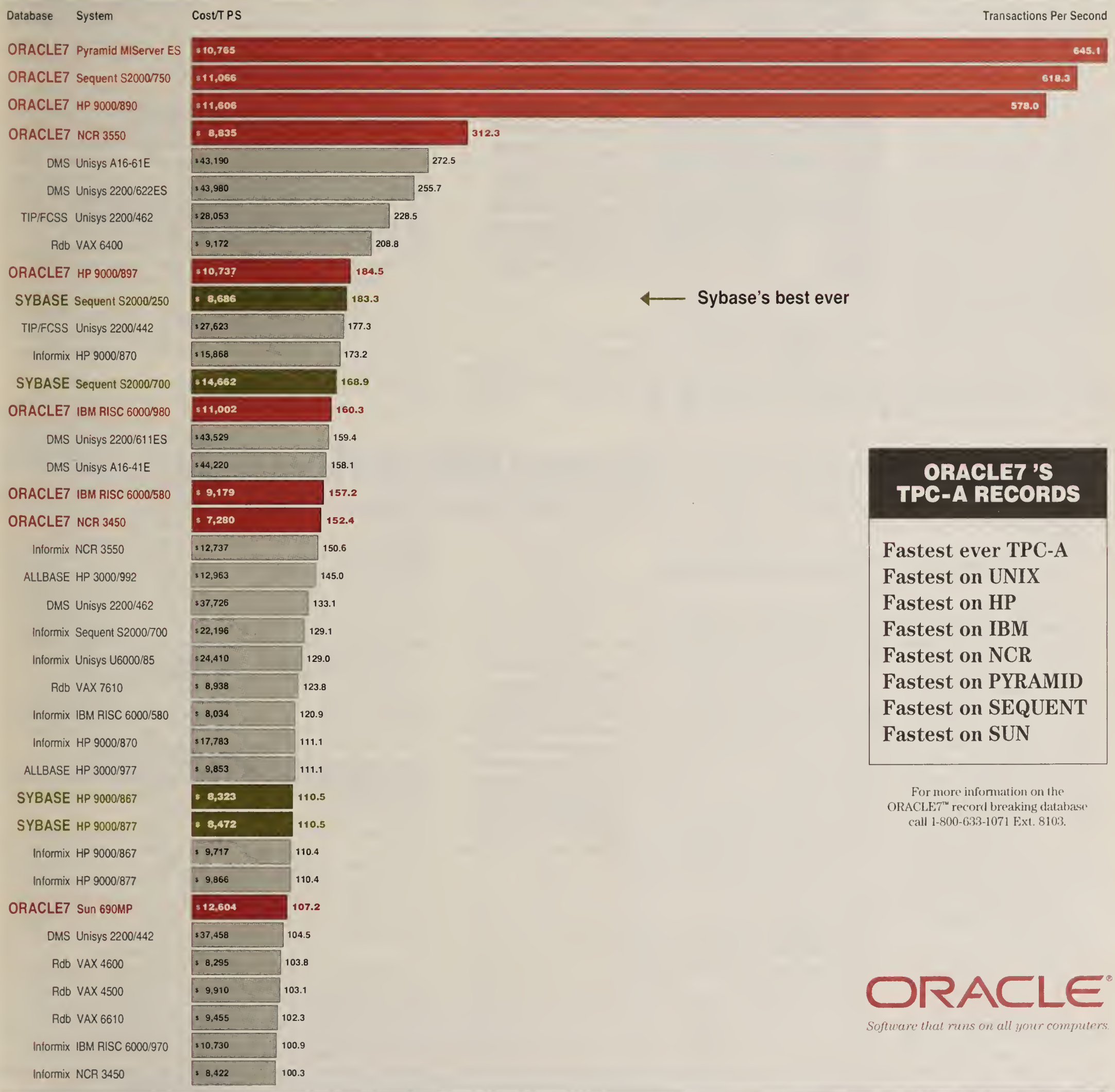

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486SL chip invades notebooks

Intel's chip to appear in systems from Compaq, AST, NEC and others

BY MICHAEL FITZGERALD
CW STAFF

SANTA CLARA, Calif. — Intel Corp.'s new I486SL chip will soon appear in notebook computers from vendors such as Compaq Computer Corp., AST Research, Inc. and NEC Technologies, Inc., despite an industry that questions whether the chip will live to see another generation.

The new 25-MHz 486SL, expected today, gives users a 486DX-class processor that runs at 3.3V and uses System Management Mode, which combine to help generate a 25% longer battery life than the current 80386SL power management chip. Compaq and AST claim three and 6 ½ hours under normal use, respectively.

Compaq is now shipping the 4/25C, while AST expanded its PowerExec line with six new models. Both vendors offer active-matrix color screens and up to 200M bytes of storage. AST also has passive-matrix color and monochrome versions.

NEC will today announce its Ultralite Autograph pen-based system, which uses the 486SL and is slated to ship in January.

Users contacted generally gave an enthusiastic reception to new 486SL-based notebooks.

"We've been waiting for these products," said W. B. Soper, manager of information services at Chevron Canada Ltd. "Our new sales system is a client/server application, and we need quite a bit of processing power on the front end." Soper said Chevron has stopped buying 386-based systems. Because Compaq, Chevron's main PC supplier, has not had a 486-based notebook, Soper welcomed its product.

Compaq also introduced the LTE Lite/25E, a 386SL-based notebook with a twist: It has a high-resolution, active-matrix monochrome screen. This makes the display far brighter and easier to read than an ordinary monochrome screen. Apple Computer, Inc. is the only other company to use an active-matrix monochrome screen on a notebook.

Numerous other vendors announced support for the 486SL, although sources at some major OEMs said Intel has upset many vendors because it plans to make 3.3V, power management-capable versions of all of its 486 processors. Vendor sources said they see this giving an advantage to Toshiba America Information Systems, Inc. and Texas Instruments, Inc., which have invested heavily in power management software.

Still, the SL has integration features other Intel chips lack, and even the most disgruntled OEM source acknowledged that defections from Intel are unlikely, despite a new Cyrix Corp. CX486-SLC/E, a 16-bit chip with System Management Mode and 25% lower power consumption than existing Cyrix chips.

One analyst downplayed these squabbles. "The 486SL will have demand for quite a while," said Tim Bajarin, president of Santa Clara, Calif.-based Creative Strategies Research International, Inc.

Powerful savings

Intel's 486SL power saving chip will appear in the following vendor's systems:

	Compaq notebook	AST notebook	NEC pen-based
CPU	486SL (25MHz)	486SL (25MHz)	486SL (20MHz)
Disploy	Active-motrix color	Active-motrix color, possive-motrix color or monochrome	Monochrome
Storoge	120M byte or 210M byte	80M byte to 200M byte	40M byte or 80M byte
PCMCIA	No	Yes, 2 slots	Yes, 2 slots
Weight	6.5 pounds	5.9 pounds (mono) 6.9 pounds (color)	3.9 pounds
Bottery life	Up to 3 hours	Up to 6.5 hours	Up to 5 hours
Bose price	$4,099	$2,795 (mono), $3,595 (possive), $4,495 (octive)	$3,999 or $4,099
Avoiloble	Now	December	Jonuory

CW Chart: Michael Siggins

Lotus to Improv for Windows

BY ROSEMARY CAFASSO
CW STAFF

BOSTON — After months of sneak previews, Lotus Development Corp. is scheduled to officially unveil Improv for Windows, its advanced spreadsheet for modeling and analysis, at a meeting of the Boston Computer Society tonight.

"I've put it in the category of potentially valuable," said Joseph Caruso, director of corporate systems and technology at American Express Co. in New York. "It appears to be a leap in effectiveness in terms of modeling and analysis. It isn't restricted to the row and column format."

While Lotus is expected to use tonight's pre-Comdex/Fall '92 event to launch Improv, the software is not yet ready for volume shipment, sources said. However, Lotus had previously committed to ship Improv by year's end.

Must move cautiously

Improv for Windows is a redesign of the original version, which was built for Next, Inc.'s platform. Analysts said Lotus' positioning of the product is critical for it to avoid confusing potential buyers or detract from the still shaky 1-2-3 for Windows business.

"They have got to differentiate it from 1-2-3," said Stuart Woodring, director of software strategy research at Forrester Research, Inc. "If it hits the market and users are left scratching their heads saying, 'Why do I need this, I have 1-2-3?', then the product is in trouble."

Lotus has said Improv is a step up from spreadsheets because it allows users to change and recreate data quickly.

As well, users can work with English words when creating models instead of letters and numbers.

"I think there's a group of spreadsheet users that would take this in a second: the power users and those doing modeling, analysis, strategic planning and forecasting," said John Donovan, a senior analyst at WorkGroup Technologies, Inc.

While Improv may be the focal point of the Boston Computer Society meeting, Lotus is also expected to demonstrate 1-2-3 for Windows Release 2.0, which was supposed to ship by year's end but was recently delayed until early next year.

Release 2.0 includes initial implementation of Chronicle, workgroup technology that would enable a group of users to work on a spreadsheet, make changes and see those adjustments reflected as they work.

Cyrix lures Intel 386 users to upgrade to its 486 chip

BY MICHAEL FITZGERALD
CW STAFF

RICHARDSON, Texas — Cyrix Corp. has confirmed plans to roll out at Comdex/Fall '92 a program designed to persuade corporate users to upgrade from Intel Corp. 80386DX-based systems to upgrade-ready 486DLC chips from Cyrix [CW, Sept. 7].

The Cyrix CXDRU and CXDRU2 chips will let users upgrade existing 386DX systems simply by popping out the Intel chip and popping in the Cyrix chip.

Cyrix has set pricing near $300 per chip, which has attracted the attention of corporate users, several of whom said they plan to install the chips in their Intel-based systems.

"I am absolutely going to recommend that we buy them," said Eric Lafortune, regional computer coordinator at Unocal Corp.'s oil and gas division in Bakersfield, Calif. Lafortune said his tests showed engineering applications ran 80% to 100% faster with the new Cyrix chips.

"As far as I'm concerned, before we buy 486 systems we ought to upgrade to these for a lot less money," he said.

While Lafortune's division is looking at perhaps upgrading only 150 PCs, he said he would recommend the Cyrix chip to the corporate information systems staff.

Another IS manager at a major West Coast financial institution, who asked not to be named, said his division would buy 200 of the Cyrix chips and will add them to the list of acceptable corporate standards. Landing on corporate buy lists will give Cyrix the potential to sell thousands of upgrades.

Not convinced

Still, some users who have tested the chips remain skeptical.

"It's a great idea, but we need to see the results," said Jon Davies, systems programmer at Alberta Wheat Pool, a grain cooperative based in Calgary.

Davies said his company has 300 AT&T 6386s running Unix, and the Cyrix chip could increase their life span, saving the cost of buying new systems.

He said OS/2-based machines showed a 25% speed increase, which was not enough to justify upgrading them, but a similar increase for the Unix boxes would be welcome.

Cyrix also acknowledged that it was working on an SX upgrade chip, but because SX chips tend to be soldered directly on the motherboard, replacing them presents some "mechanical difficulties."

CA teases OOPs workbench

CA-Visual Objects offers extensions to Clipper

BY GARRY RAY
CW STAFF

NEW YORK — Computer Associates International, Inc. last week previewed a version of its object-oriented application development technology, formerly code-named Aspen.

The technology, which Chairman Charles Wang said will eventually be used in CA's Cobol and fourth-generation language products, was shown working with the company's Clipper database development language here at CA Technicon '92, the company's conference for the Xbase developer. Price and shipping dates for CA-Visual Objects were not available at press time.

As for its usefulness to Xbase programmers, "the specific implementation, syntax and semantics will take time to learn," said Marc Schnapp, an El Sobrante, Calif.-based consultant and acting chairman of the ANSI Xbase language standard committee. However, "this is the first time an Xbase vendor has extensively demonstrated a fully object-oriented dialect of the language," he said.

Islandia, N.Y.-based CA acquired Nantucket Corp.'s Clipper development tools for Xbase programming last June.

CA-Visual Objects for Clipper, the first implementation of Aspen, comprises a database development workbench and a compiler for Xbase programming.

In prepared remarks, Wang said the workbench "protects investments by promoting the reusability of code and the ability to wrap legacy code in [to] the new object-oriented model."

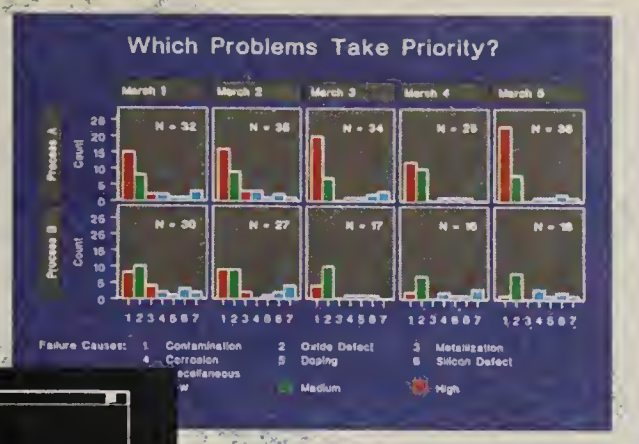
Simple to port

CA-Visual Objects also includes a number of object class libraries that support graphical user interfaces and database functions. The libraries are derived from the Glockenspiel CommonView class libraries, which CA recently acquired.

With these libraries, Wang said, "Aspen applications will easily be ported to new environments, including OS/2 [Presentation Manager] and Motif under Unix."

According to company officials, CA-Visual Objects includes the following features:

- Extensions to the Clipper programming language.
- Four class libraries for standard functions, databases, user interfaces and applications.
- A program repository with application and class browsers.
- An incremental Xbase compiler.
- An integrated development environment with program editors, screen painters and other tools.



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Launch links ISDN 'islands'

CONTINUED FROM PAGE 1

and the ability to accommodate far-flung users in today's increasingly mobile, telecommuter-oriented society.

"Being able to access a variety of applications simultaneously over a single network architecture is probably our primary benefit," said Lari Sue Taylor, a telecommunications consultant at the Federal National Mortgage Association (Fannie Mae) in Washington, D.C.

"We can use an ISDN line from one desktop to access several hosts because of its switched nature," she explained.

The U.S. Environmental Protection Agency (EPA) is using ISDN to interconnect local-area networks and is also investigating the technology to save money, said David A. Bittenbender, telecommunications branch chief at the agency.

"We're upgrading to ISDN telephones for voice service, and we're considering dividing ISDN's two 64K bit/sec. channels between two phones," he said. This way, the EPA would accommodate every two phones for 1½ times the cost of basic phone service.

However, he is also looking at ISDN as a way to bring IBM 3270 traffic, which is currently flowing to cluster controllers in eight different D.C. branches, to controllers in a single site to centralize maintenance. His alternative, he said, would be to dedicate fractional T1 lines from each location. Dedicated lines traditionally cost much more than switched service.

Another Trip '92 participant, Canon U.S.A., Inc. in Lake Success, N.Y., is investigating ISDN for telecommuting applications, said Ben Oliva, manager of telecommunications.

"The 1990 Clean Air Act means companies of over 100 employees are going to have to reduce the vehicular traffic going in and out of their facilities," he noted. In addition, "ISDN will bring some human resources quality to the woman who starts a family or someone who is physically impaired."

"National ISDN will enable my company to look at itself on a national basis for deploying different applications," said Mike Brophy, manager of network office systems at Quantum Chemical Corp. in Cincinnati. "By 1994, ISDN service should cover a large portion of where we have concentrations of people."

Extending client/server

Aside from his goal of giving remote users the same access to corporate information via ISDN as those physically closer to the computing resources, Brophy said he envisions ISDN as a way to "extend client/server applications into a customer/vendor relationship" by allowing the various companies' networks to temporarily blend when they conduct business.

The University of West Virginia has similar ideas. One of its vendors in California was recently able to bridge into a university LAN via ISDN to perform some troubleshooting "without Federal Expressing a disk or faxing a printout," said Jeff Fritz, telecommunications engineer at the university.

ISDN's bandwidth limitations are often seen as roadblocks to ISDN's promise of a single network architecture for delivering dial-up voice, data and video as simply as users make a telephone call today. However, Brophy said that to his surprise, his Microsoft Corp. Windows applications have not missed a beat across the currently 144K bit/sec. network.

Trip '92 is the culmination of an effort kicked off by the Corporation of Open Systems (COS) in February 1991. Prior to COS' taking executive action in bringing together equipment makers, software developers and network service and switch providers on a common ISDN specification, the industry was at an ISDN interoperability stalemate because of internetwork compatibility problems.

One service for all

National ISDN-1 means there are 22 standards-compliant central offices nationwide interconnected by a long-distance telephone company; 100 offices are planned by the end of the year. Other National ISDN characteristics include the following:

- Basic rate service only. Users get two 64K bit/sec. channels for voice, data or video and one 16K bit/sec. channel for transmitting management information or packet switching.
- Only AT&T and MCI Communications Corp. are up as long-distance ISDN interconnection carriers.
- Applications on display at nationwide open houses include image and file transfer, desktop- and video-conferencing, point-of-sale, LAN interconnection, telecommuting and Group 4 (fast, high-quality) fax.

When National ISDN-2 kicks in by late 1993, it will add the following:

- Primary rate (1.5M bit/sec.) service.
- Packet switching across the 64K bit/sec. channels.
- More than 56% of 115 million regional Bell operating companies network access lines with ISDN service by late 1994.

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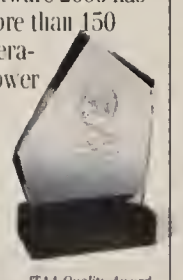
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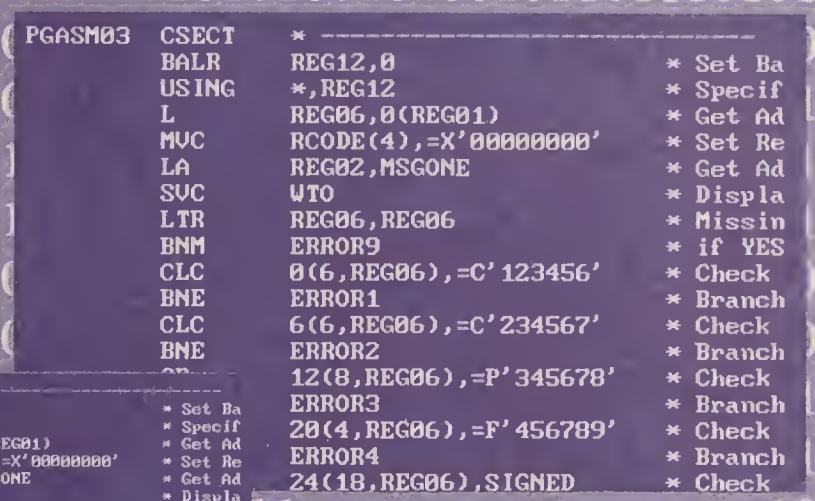

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Hertz talks with outsourcer

ISSC may selectively take on IS operations

BY MARK HALPER
CW STAFF

OKLAHOMA CITY — The Hertz Corp. last week began shedding light on its selective outsourcing plans, disclosing that it has entered negotiations to hand over some of its information systems operations to IBM's Integrated Systems Solutions Corp. (ISSC) subsidiary.

In a sketchy statement, Hertz confirmed earlier reports that it plans to outsource some activities to ISSC while leaving others in-house [CW, Oct. 5].

"Affected areas include selected IBM-based application development and all IBM computer operations and technical support" in Oklahoma City, the company stated. The company did not return phone calls asking for elaboration. An ISSC spokeswoman also declined to comment.

The company said some operations will be "unaffected" by outsourcing. Those include reservation systems operations, technical support and development, rates development, yield management development, European development, telecommunications, research and development and "other selected areas of IBM-based application development."

Hertz also characterized certain systems and support providers as "unaffected." Those are Hewlett-Packard Co., Tandem Computers, Inc. and Digital Equipment Corp. It did not mention Unisys Corp. on the "unaffected" list. Hertz runs reservations — which it described as an "unaffected" operation — on Unisys mainframes.

A Unisys spokesman said, "Our information is that our status is unchanged," but he found it "curious" that Unisys was left off the list of unaffected systems.

Hertz did not consult Unisys on the announcement, and Unisys had not received a copy of it as of late last week, the Unisys spokesman said.

Premier executives

More than 50 IS executives from the *Computerworld Premier 100* companies gathered in New York last week for an awards dinner honoring America's most effective users of information technology. Executives from the companies who finished first in their categories include:
Front row (left to right): Burley Gayer, Helen Gipson and Liz Turner, Wal-Mart Stores, Inc. (retailing and wholesaling); William Delaney, The Boeing Co. (aerospace); Doyle Graham, Wal-Mart.
Back row (left to right): D. James Dull, Kimberly-Clark Corp. (manufacturing); Paul Gillin, *Computerworld*; Max Hopper, AMR Corp. (transportation); Gary Beach, *Computerworld*; Ken Nelson, Reader's Digest Association, Inc. (consumer products and services); Patrick McGovern, International Data Group; James Zucco Jr., MCI Telecommunications Corp. (utilities); Charles Bowerman, Phillips Petroleum Co. (petroleum and chemicals); Charles Popper, Merck & Co. (pharmaceuticals and food); and Bill Laberis, *Computerworld*.

IBM, ISSC probe widened

CONTINUED FROM PAGE 1

arate subsidiary.

The same ruling — an agreement between IBM and the Justice Department's antitrust division — barred IBM from providing equipment to the subsidiary at lower rates than those it offers to competing service bureau companies.

The agreement addressed the concern that IBM could turn its dominance as a product supplier into an unfair advantage in the processing business.

Some outsourcing vendors, led by Dallas-based Affiliated Computer Systems, Inc., maintained that the 36-year-old ruling pertains to today's outsourcing business, which is a form of service bureau work.

Affiliated first complained to the Justice Department almost two years ago and claimed that IBM's May 1991 formation of the Integrated Systems Solutions Corp. (ISSC) outsourcing subsidiary did little to alleviate IBM's breach of the decree.

The case had stagnated for almost two years, but it now appears to be moving forward: The Justice Department has kicked responsibilities up two levels, from staff attorney Richard Irvine to Gidley.

That development came in September. Since then, Gidley has met with Affiliated President Charles Young, has asked IBM for its response and has made plans to solicit industry association Information Technology Association of America (ITAA) for more information, Young said.

The Justice Department was scheduled to meet with IBM last week, Young said.

Calls to Gidley and Irvine were referred to a department spokeswoman, who characterized Gidley's actions as "an investigation of facts [into] whether or not there's been a violation of law." The spokeswoman declined to elaborate on the request the Justice Department has made of IBM or on how its request may differ from any earlier requests it has made of IBM.

An IBM spokeswoman said, "This is not a matter we discuss publicly. We believe we are in compliance with the Consent Decree. Anything beyond that is speculative."

Meanwhile, IBM chairman John Akers last August asked ISSC's general counsel Stephen Huhn to investigate the matter. That directive came in response to a letter that Young sent to Akers. In that letter, Young raised questions about the legality of ISSC and asked Akers to supply Affiliated and other outsourcers with a list of inventory and prices of products sold or leased by IBM to ISSC. IBM was bound by the Consent Decree to provide that and other information, Young said in his letter.

In his reply, dated Aug. 12, Huhn said: "We have begun an internal inquiry into your questions and will respond as soon as possible after its completion."

As of late last week, Young said he had not yet heard from Huhn or IBM. Huhn is also believed to be handling the Justice Department's request of IBM.

Affiliated alleged that IBM's formation of ISSC did not clear the computer giant of wrongdoing because ISSC continues to use IBM's sales force and name and to receive special discounts. Furthermore, ISSC continues to benefit from outsourcing jobs obtained by IBM prior to ISSC's formation, Affilated claimed. Affiliated has urged that IBM be stripped of all pre-ISSC contracts.

"No matter how this turns out, IBM has had the effect of lowering prices to customers by bringing margins down to more of a manufacturing level than a service level," observed Warren Gallant, a principal at Technology Partners, Inc., a Houston consultancy that has helped negotiate IBM outsourcing deals for Riggs National Bank and Matson Navigation.

"I believe their prices are competitive but certainly not advantageous over the competitors," Gallant said. "If the decree came down and kept them from staying in the business, the margins could creep back up."

The Justice Department had asked ITAA to solicit members for input once before, but according to an ITAA spokesman, the "silence was deafening" when ITAA asked for comments. The ITAA spokesman noted that "there were some who did know about things but didn't want to say it." He further explained that for some members, "either there wasn't anything that bothered them, or if there was, they didn't want to talk about it."

Del Monte feeds EDS its IS operations

BY KIM S. NASH
CW STAFF

SAN FRANCISCO — Del Monte Foods canned its entire information systems operation last week, signing an estimated $150 million, 10-year outsourcing deal with Electronic Data Systems Corp. The contract, which Del Monte officials said will save the food processor an undisclosed "significant" sum, reverses a flat rejection of EDS outsourcing less than two years ago.

The agreement calls for EDS to purchase all Del Monte hardware and software, as well as offer positions to 100 of the food processor's 105 IS employees. EDS will provide all telecommunications, IS operations and applications enhancements and maintenance for Del Monte. The firm currently runs 85 financial, inventory and other applications on IBM 3090 mainframes as well as a recently completed distributed IBM Application System/400-based manufacturing system [CW, Oct. 19].

Del Monte contracted with EDS in March 1991 to help with a massive $12.4 million downsizing project that would move the food maker's manufacturing systems from IBM Series/1 machines to AS/400s. Del Monte declined an outsourcing offer from EDS at that time because it was completing a leveraged buy-out from Nabisco Brands, Inc., according to David MacPherson, chief information officer.

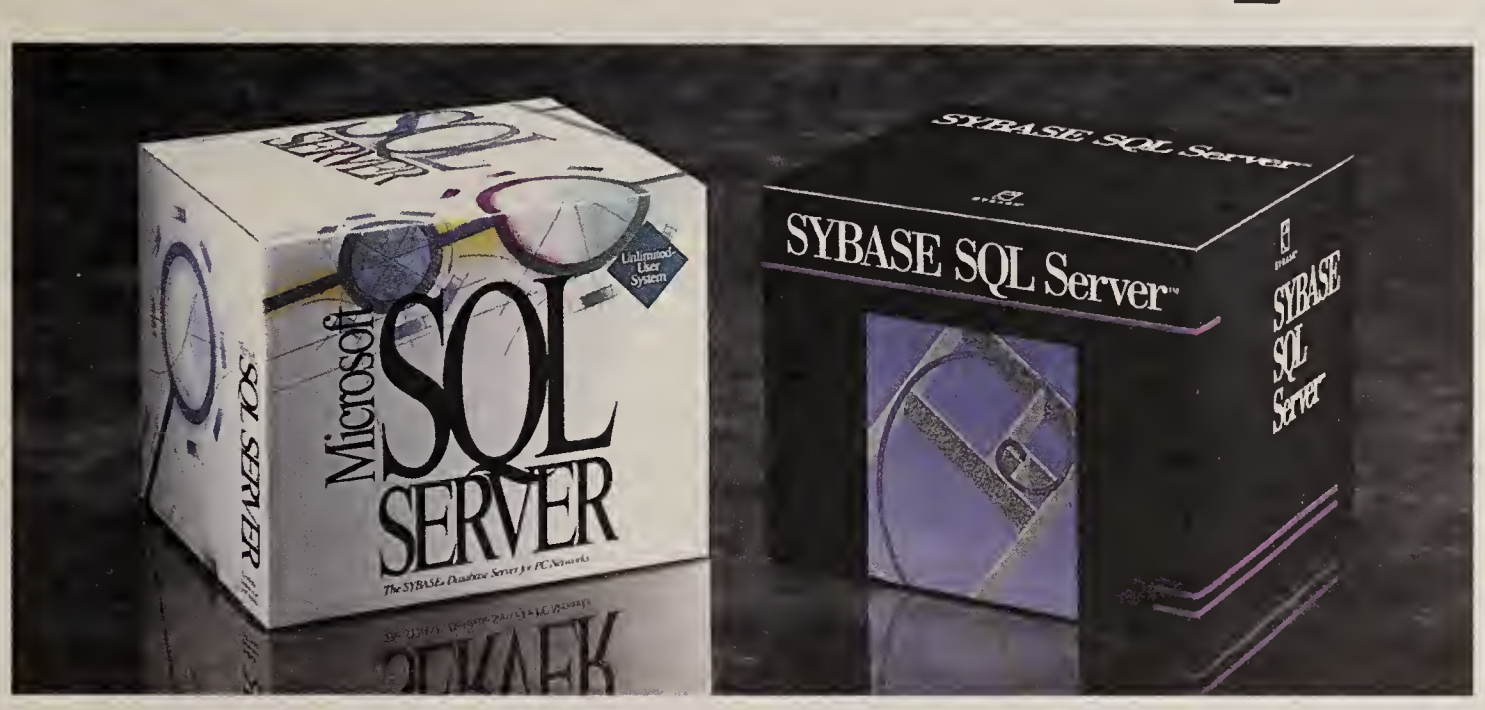
In addition to being unfamiliar with EDS back then, IS had to take a backseat to the business issues of seceding from Nabisco. "It was a matter of priorities," MacPherson said.

However, a poor U.S. economy forced the company to reconsider farming out IS. "If you can't grow the business the way you thought, you have to find a way to reduce expenses," MacPherson explained.

Officials declined to specify projected savings, but much of it is likely to stem from the elimination of IS salaries. All 100 Del Monte IS staff members are expected to transfer to EDS, officials said. The remaining five will stay at Del Monte to "represent our needs to EDS," MacPherson said.

Hardware upgrades will be handled as an incremental expense separate from the base fee Del Monte has paid EDS, MacPherson said.

Here's Everything You Need To Know About Windows-based Client/Server Computing.



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Sybase products challenge Oracle 7

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — Sybase, Inc. is firing a round-the-world salvo at its largest competitor, Oracle Corp., this week, briefing users and analysts across the globe on its plans to distribute client/server computing across the enterprise.

The announcement of Sybase's System 10 product line is meant to assure users that Sybase will be delivering industrial-strength database tools for high-volume on-line transaction processing applications beginning next year.

However, Sybase does not intend to give specific delivery dates for the System 10 product line, longtime users said last week. "They've been burnt in the past by promising [products] and not delivering in certain time frames," said David Truch, former president of the Sybase International User Group and a senior technologist at BP Exploration Alaska, Inc. in Anchorage.

"We're going to be painting the big picture, but we will not be giving a whole lot of detail," agreed Perry Mizota, Sybase's director of strategic marketing. "We want to address some of the requirements of the next phase of client/server computing."

Flexibility key

That kind of long-range planning is fine with many users, who just want to be assured that the $160 million company will be able to respond to whatever products its relational database management systems competitors can dish out.

"They've been working on some of this stuff for two years or more," said Bill Soper, manager of information services at Chevron Canada Ltd. in Vancouver, B.C. "We saw some of this stuff at the design stage, but things were getting so complex out there in terms of what people are trying to do with these databases that [Sybase] decided to show [the products] now."

Industry analysts agreed that time is of the essence in unveiling System 10 products this month, as Oracle prepares to ship its new database in volume. "Sybase is feeling the heat of [Oracle's] Version 7," said Judith Hurwitz, president of the Hurwitz Consulting Group in Newton, Mass.

There are technical issues, too, including many related to the management of distributed DBMSs. Oracle claimed that Sybase's two-phase commit methods are awkward, requiring extra lines of programming for real-time transaction processing. That claim has been answered, in part, by System 10's Replication Server for updates of multiple, distributed servers.

Likewise, System 10's Navigation Server addresses Informix Software, Inc.'s parallel data query (PDQ) feature for its Informix 6.0 database, due in 1993. The PDQ feature speeds throughput by sending complex queries to multiple CPUs.

User patience wearing

However, some users noted that they could not wait much longer for forthcoming Sybase products, including the Replication Server. "It's not happening fast enough," said John Webb, manager of database administration at Moody's Investors Services, a securities rating firm in New York.

A year ago, Moody's started using a third-party product, the Multi Server Option from AFIC Computers, Inc. in Jerusalem, to update servers in real time across its local- and wide-area networks.

User enthusiasm runs highest for the Replication Server, which some said is expected to ship in the second half of 1993. "I think that anything that helps us manage a distributed database environment is a welcome addition," Soper said. "There will be automatic updates with less programmer intervention. It's a more intelligent way to handle operations."

The oil and energy firm is building a network of 30 Sybase SQL Servers in Western Canada that will update parent Chevron Corp.'s databases near San Francisco.

The value of the Replication Server lies in the ability of information systems managers to control network costs, said Dirk Epperson, vice president of research and development at Hill Arts & Entertainment, Inc. in Emeryville, Calif., which designs Sybase DBMSs for ticket vendors.

"We will be able to make the choice of what 'near real time' means to us and to make decisions based on how much it will cost to make each update," Epperson said.

Sybase 10 ingredients

Sybase 10, which is expected to begin shipping next year, will consist of the following components, according to comments made by Sybase executives in London and the U.S. last week:

- The Replication Server, a Sybase SQL Server system said to allow a master server to update multiple remote servers even if they are geographically dispersed. The updates are done in "near real time" so as not to choke networks with two-phase commit updates that lock servers.
- Sybase SQL Server 5.0, an enhanced database engine capable of storing very large databases comprising multiple gigabytes of data. Speed, performance, database security and data recovery have been enhanced in this upgrade.
- Navigation Server will support the division of complex database queries into small pieces for processing on parallel server systems. Sybase has been working with NCR Corp. for some time on this product, which reportedly can increase throughput tenfold or more when used on an NCR 3600 server.
- OmniSQL Gateway will allow users to write stored-procedure code in Sybase's proprietary Transact/SQL language, then use those applications to run against Sybase or Oracle databases.
- Performance monitors and network management software designed to support the use of Sybase database servers in high-volume on-line transaction processing environments. Additional IS controls are considered key to wider acceptance of large Sybase databases in IBM mainframe shops.

Compiled by IDG News Service correspondent Ron Condon and senior West Coast editor Jean S. Bozman.

Oracle Glue API debuts

BY JEAN S. BOZMAN
CW STAFF

REDWOOD CITY, Calif. — Oracle Corp. last week announced software that it said will affix Windows applications directly to Oracle products through Microsoft's Dynamic Link Libraries (DLL).

Oracle Glue 1.0 is an application programming interface that allows Windows developers to tie programs written with Microsoft's Visual Basic and Excel to a variety of back-end database servers, including Oracle's SQL Net, IBM's DB2 and Borland International, Inc.'s Paradox and dBase.

Lotus Development Corp.'s 1-2-3 spreadsheet and AmiPro word processor applications are currently supported.

Oracle Glue is slated to be available in April 1993 for $2,995 through Oracle's direct sales force and via the firm's telephone sales. The product includes a license for unlimited runtime versions of Oracle Glue.

There is an additional $899 yearly maintenance fee for upgrades and support.

Downsizing pushes IBM DBMS revamp

CONTINUED FROM PAGE 1

(see story this page).

"I've heard [IBM] mention the AIX database at briefings, but I just tune it right out," said Bob Denison, open systems development unit manager at Wausau Insurance Cos. in Wausau, Wis., one of IBM's early commercial sites for the RS/6000.

"It makes sense for IBM to do this because not every customer is going to be as independent as one our size or willing to integrate their own stuff," said Mark Schmidt, vice president of information technology and communications at Wal-Mart Stores, Inc. in Bentonville, Ark. The retailer uses Unix gear from NCR Corp., Hewlett-Packard Co. and IBM.

"We're a large Informix user now, but we would obviously want to take a look at an AIX [database], just as we look at all new technology," Schmidt added.

Analysts were similarly skeptical. Richard Finkelstein, president of Performance Computing, Inc., a Chicago-based consultancy, said, "There's no real vision here; IBM is just tossing things out like it's an inventory sale."

"Inevitably, DB2 sales will slow down as mainframe sales slow," said Colin White, president of Database Associates International, a consulting firm in Morgan Hill, Calif. "But IBM will find it very difficult going in Unix because they have never been able to add new functionality, test it and get it out the door as quickly as their competitors. It will require fundamental changes in IBM and its development organizations."

Nor is Version 3.1 of DB2 expected to help stem the downsizing tide. "I don't expect it to make a difference either way," White said. "It won't be any major reason for people to stop downsizing, although it will be good for existing DB2 users."

Mainframe distribution

The new DB2 will allow a mainframe to distribute portions of database processing to other computers, with the first machine coordinating the transfer. If a transaction is interrupted, the first machine decides whether to commit or abort the process. This feature is known as a distributed unit of work.

IBM officials disputed the negative view of its database moves. Al Zollar, DB2 product manager, said IBM expects to keep growing — albeit slowly — the number of DB2 licenses, which now stands at 6,000. About 40% of those are in the U.S.

"There's been shrinkage" in the number of U.S. DB2 licenses," Zollar acknowledged, "and growth outside. Overall, it's been a flat picture." Nonetheless, he said, IBM believes it can still increase DB2's market share on existing MVS platforms, particularly in the data query market. "I do see opportunity for DB2 growth," he said.

Extended relations

IBM's AIX relational database will have the following features:

- Built on the OS/2 Data Manager.
- Designed for a client/server local-area network architecture.
- SQL-based but not object-oriented.
- Equipped with an industry-standard interface to connect with IBM and non-IBM transaction monitors.
- Operating system-independent — such as Oracle Corp. or Sybase, Inc. — databases.
- Tightly integrated with DB2 on the mainframe and OS/2 Data Manager on the desktop.

Cincom soups up Supra DBMS

BY JOHANNA AMBROSIO
CW STAFF

CINCINNATI — Not content to let the distributed computing world pass it by, Cincom Systems, Inc. has revamped its mainframe Supra database manager to run on local-area networks and under Unix.

At the same time, Cincom managers said, the company has delayed the release of Supra Release 3.0 — its entry into the distributed database market — until March. It was originally due out on Oct. 15, but it turned out to be more challenging to get out the door than the company had originally thought.

The revamped database manager — called Supra Server, or Supra Version 2.4 — is receiving high marks from analysts for technical merit.

But some observers said Cincom's ability to market effectively against the major Unix contenders — including Oracle Corp., Ingres Corp. and Informix Software, Inc. — is anything but a done deal.

Nor are the other Unix database vendors sitting still. Sybase, Inc. is preparing a major announcement for next week, and IBM is slated to unveil its long-awaited AIX data manager next year (see stories pages 1 and 14).

Additional enhancements

Other features include forward and rollback recovery and hot backup, which allows administrators to back up the database without having to bring it down.

Supra Server runs under a variety of Unix-based operating systems, including those from Sun Microsystems, Inc.; Sequent Computer Systems, Inc.; the NCR division of AT&T; IBM; Hewlett-Packard Co.; and Digital Equipment Corp. It also supports LAN protocols including DECnet, LAN Manager, LAN Server, IBM's LU6.2, Novell, Inc.'s NetWare and Banyan Systems, Inc.'s Vines.

Prices for Supra Server, available now, range from $2,000 to $150,000, depending on operating platform.

Consultant Shaku Atre, president of Atre, Inc. in Rye, N.Y., said, "It really looks very good. This could be a renaissance for Cincom."

Finding a new market

Still, technology may not be enough. Colin White, president of Database Associates International, a consultancy in Morgan Hill, Calif., said, "Cincom has good technology but like others has had difficulty selling it. It's a question of marketing. They have to appeal outside of their current customer base."

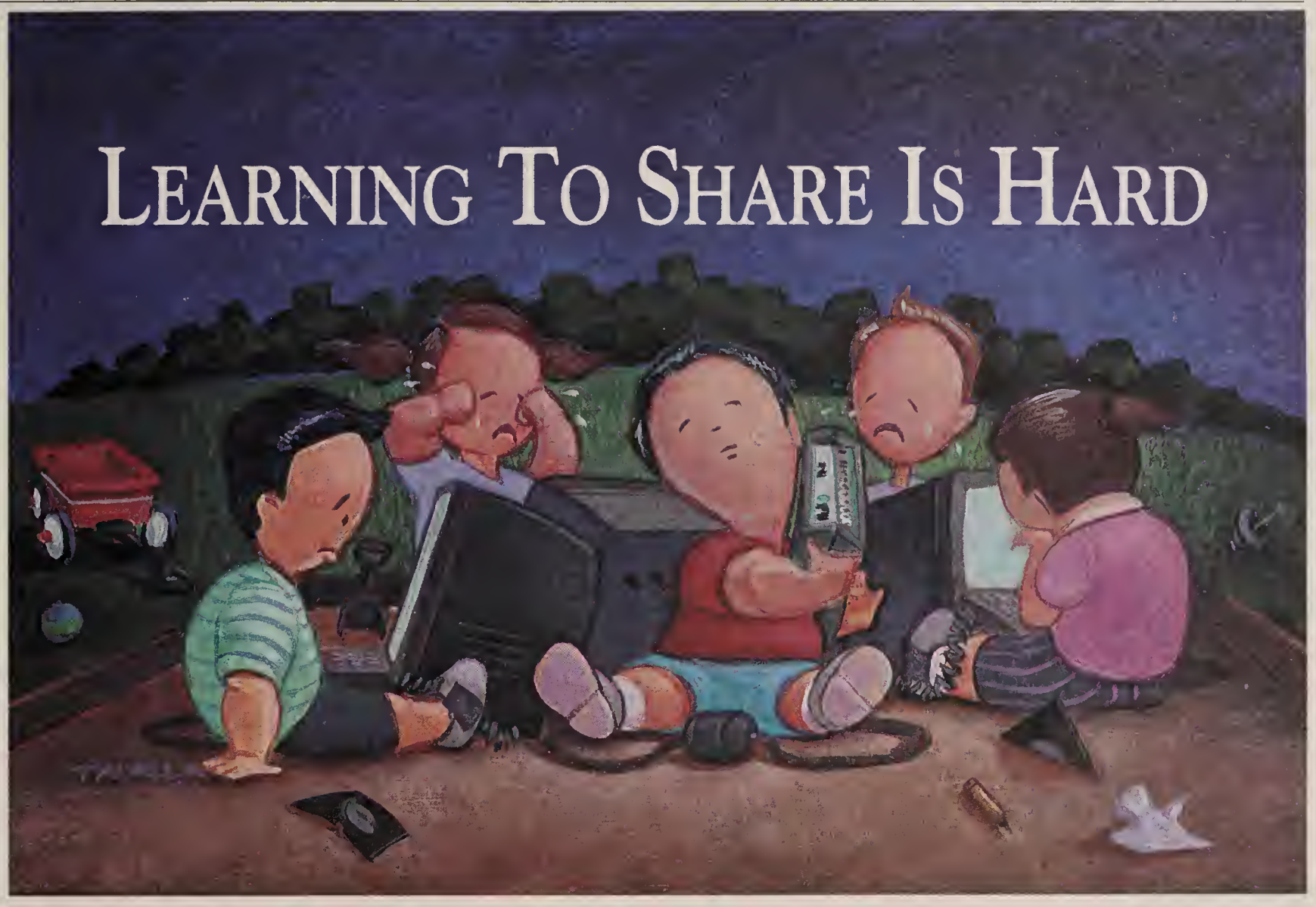
Dave Bunker, senior director of marketing and business planning at Cincom, said, "This is the most aggressive launch campaign in Cincom history." The launch budget of approximately $4 million will include advertising, trade show booths and seminars, among other things.

Craig Lincoln, manager of information services at Star Cutter Co., a manufacturer in Farmington Hills, Mich., said he is looking forward to implementing Version 3.0 at his VAX shop because "it makes sense to build independent databases to reside in the plants." But he said he is not disappointed with the six-month delay for the distributed Supra because "Version 2X is already doing a lot for us." Lincoln said he does not plan to install any Unix computers.

Cincom's basic strategy is to "bring the mainframe database, with all those reliability and security features, down into the client/server world," said Richard Finkelstein, president of Performance Computing, Inc., a Chicago-based consultancy.

Finkelstein said one important technical difference between Supra Server and other Unix database systems is a feature called updated views. It allows database administrators to change the structure of database tables without affecting the transaction.

"They're the only ones to do that," Finkelstein said.



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NEWS SHORTS

High tech will not top Clinton agenda

President-elect Bill Clinton's proposed high-technology policy initiatives are not likely to make the new adminstration's agenda in its first 100 days, a Clinton spokesman said last week. Clinton's policy includes government investment in national communications networks, diversion of federal research and development funds from defense to civilian sectors, education and training programs and investments in private industry consortia. One immediate priority that may affect high technology is an emphasis on an incremental tax credit for investments in new plants and equipment, including computer systems.

CSC seeks giant outsourcing deal

Claims that the outsourcing megadeal is dead apparently have not made it to Australia. Computer Sciences Corp. (CSC) has started negotiating what it says will be a $1.5 billion, 10-year accord with Australian Mutual Provident Society, a Sydney-based insurance group. A tentative agreement calls for CSC to acquire Australian Mutual's data processing subsidiary, Computer Sciences Australia, which, ironically, CSC once jointly owned. CSC would pick up 1,000 employees from the subsidiary and roughly 600 from an information systems shop at the parent company. About $80 million in annual revenue would result from existing business with the parent company — which buys only some of its processing from the subsidiary and other clients — and $70 million would come from other business.

Solaris 2.1 debuts

With 1,300 bugs exterminated and a swarm of new features added for commercial account appeal, the Solaris 2.1 Unix operating system made its debut last week from SunSoft, Inc., a Sun Microsystems, Inc. software subsidiary. Sun officials said some 800 of the most popular Scalable Processor Architecture applications are now being ported to Solaris 2.1, which is slated to ship on Sun's new systems next month and on Intel Corp. platforms next year. Desktop pricing is $795.

AT&T plans to buy stake in McCaw

AT&T last week said it is negotiating a $3.8 billion investment in McCaw Cellular Communications, Inc., the nation's No. 1 cellular company and sixth-largest provider of paging services. The equity stake, which officials said they expect to complete in first- or second-quarter 1993, would speed the deployment of a "seamless, nationwide network for cellular and wireless services." AT&T would grant McCaw a long-term license to use the AT&T name and give it access to AT&T Bell Laboratories.

DEC eases Canadian licensing

Digital Equipment of Canada Ltd. is changing its marketing practices in response to concerns voiced by the Canadian Bureau of Competition. The bureau objected to an "integrated service policy" whereby DEC's hardware servicing was tied to software servicing and pricing, impeding third-party maintainers and increasing costs for certain end users. DEC said it will change its practices in 1993, allowing for separate price quotations and stand-alone purchases of products and maintenance services from the vendor.

Short takes

Ethernet switching start-up **Kalpana, Inc.** in Santa Clara, Calif., and **Sun Microsystems Computer Corp.** said last week they will jointly develop products to address network congestion problems in Ethernet networks that contain high-speed workstations.... **AT&T Microlectronics** said it will build the Mobitex two-way wireless data-transmission architecture into its V.32 bis and V.17 bis modem chip sets, allowing modem makers to support both terrestrial and wireless communications in one package.... **HP** announced its developer's environment for the **Open Software Foundation**'s Distributed Computing Environment last week and said the software will ship in early 1993, at prices ranging from $395 per network client to $2,000 for the application development tools.... **Toshiba America Information Systems, Inc.** is expected to sign a strategic agreement with **MediaShare Corp.** that will make it the exclusive distributor of MediaShare's Mambo Digital Video Interactive Board. The product, which is used in Toshiba's T6400DXC and T6400SXC portables, costs $1,699.

Exchange to implement ATM

Pacific Stock Exchange plans to replace physical trading floor next year

BY JOANIE M. WEXLER
CW STAFF

SAN FRANCISCO — Although conservatives claim it will be years before users turn to Asynchronous Transfer Mode (ATM) networking in a big way, the Pacific Stock Exchange plans to embark whole-hog on an ATM network next year if the technology becomes widely available.

The exchange intends to leverage the technology to replace its physical trading floor with a virtual one so that traders can conduct financial transactions from "wherever they find it most efficient," said David Eisenlohr, vice president of telecommunications.

Rather than the exchange floor, "this is likely to be a brokerage or other member firm's regional office, where they can put a Pacific Stock Exchange trading desk next to others that contact other exchanges," he explained.

Eisenlohr's organization would like to run an initial virtual trading floor pilot next July, then move to a nationwide pilot in late 1993.

The project would entail delivering multiple, real-time news feeds and other forms of market information to far-flung traders.

Eisenlohr said there are three reasons the exchange is looking to ATM — the technology hopeful for one day blending local-and wide-area networks into one cohesive, high-bandwidth switched network — to build the virtual trading environment:

- The security afforded by ATM's virtual point-to-point connections is critical to a financial trading environment. Like a telephone call, ATM establishes a temporary end-to-end connection for each transmission.
- The speed of ATM connections — into the gigabit per second range — is necessary for the half-second response times required in the hurried buy-and-sell market, particularly as market data becomes more graphical and bandwidth-hungry.
- The purported long-term viability of the technology means the company could ease up on continually deploying new technologies as they are born.

"U.S. businesses cannot afford to follow the technology game and keep investing in the box of the month," Eisenlohr observed. He added that "the No. 1 problem facing businesses is how to answer phones better and deliver better service. If you're continually putting time, money and effort into technology, you're not doing that."

Eisenlohr said he plans to spend the next few months trying to blue-sky the problems he is likely to face. So far, the biggest hurdle is that "ATM isn't here yet, and there is no other [high-bandwidth] integrated voice and data solution today," he said.

The exchange is looking at Integrated Services Digital Network for "smaller trading functions that may only have one or two phone lines and a couple terminals," he said.

In ATM's absence, the Pacific Stock Exchange is also investigating Switched Multimegabit Data Service (SMDS) and frame relay, alternative high-speed networking technologies that are further along in development, though Eisenlohr questioned their migration path to ATM.

At a recent Interop '92 Fall session, however, the presidents of the ATM, SMDS and Frame Relay Forums said users investing in frame relay can use the technology to access ATM down the road (see story page 57).

In addition, 1993 should be a "big year for ATM," observed Steve Bell, director of product marketing at Hughes LAN Systems, Inc. in Mountain View, Calif., one of myriad LAN vendors that have announced plans for ATM deployment next year.

Some ATM services should also emerge from long-distance telephone carriers during the year, said Fred Sammartino, president of the ATM Forum, who said he sees ATM as being about a year away from being cost-competitive enough for mass deployment.

Start-up firm delivers 'fast Ethernet' connection

BY LYNDA RADOSEVICH
CW STAFF

SAN JOSE, Calif. — If network standards are not an issue, users whose interest was piqued by last month's announcements from Grand Junction Networks, Inc. and Hewlett-Packard Co. will not have to wait as long as anticipated for high-speed transmission over Ethernet. Start-up MicroAccess, Inc. last week revealed it is shipping a $699 network interface card for 100M bit/sec. over Ethernet.

The announcement fell one week before today's Institute of Electrical and Electronics Engineers, Inc. (IEEE) 802.3 committee meeting, at which 100M bit/sec. Ethernet standards will be addressed and where MicroAccess plans to present its "fast Ethernet" technology.

Industry giants HP, AT&T, 3Com Corp., Synoptics Communications, Inc., Sun Microsystems Computer Corp. and start-up Grand Junction Networks will present proposals at today's meeting as well.

However, pending standards approval, these vendors said they do not expect to announce products until the end of 1994 or later.

Analysts said the MicroAccess announcement is significant because it sets a low ceiling on the price of the technology. "There is no way for prices to go but down," said Mary Modahl, director of network strategy research at Forrester Research, Inc. in Cambridge, Mass.

Despite the low costs, analysts agreed that the lack of standards would limit the growth of MicroAccess' fast Ethernet technology.

Some users — attracted by their availability and low price — are considering using MicroAccess cards to deploy small, departmental local-area networks.

For example, James Watson, manager of the advanced data processing laboratory at Sparta, Inc. tested MicroAccess's OptiLAN fast Ethernet Industry Standard Architecture (ISA) cards between four computers using six-pair unshielded twisted-pair wiring. The 25-minute installation process was easy, and the cards supported 30M bit/sec. transmissions, which were limited only by the ISA bus, Watson said. He plans to deploy a nine-node LAN in two weeks.

What price speed?

The costs of 100M bit/sec. Ethernet using MicroAccess' OptiLAN components are as follows:

16-bit XT/AT network interface card	$699
32-bit EISA network interface card	$1,595
400-ft unshielded twisted-pair wiring (6 pairs)	$28
400-ft shielded twisted-pair wiring	$72
Eight-channel star hub	$1,995*
Repeater	$995*

*Repeaters and hubs are optional components

CW Chart: Janell Genovese

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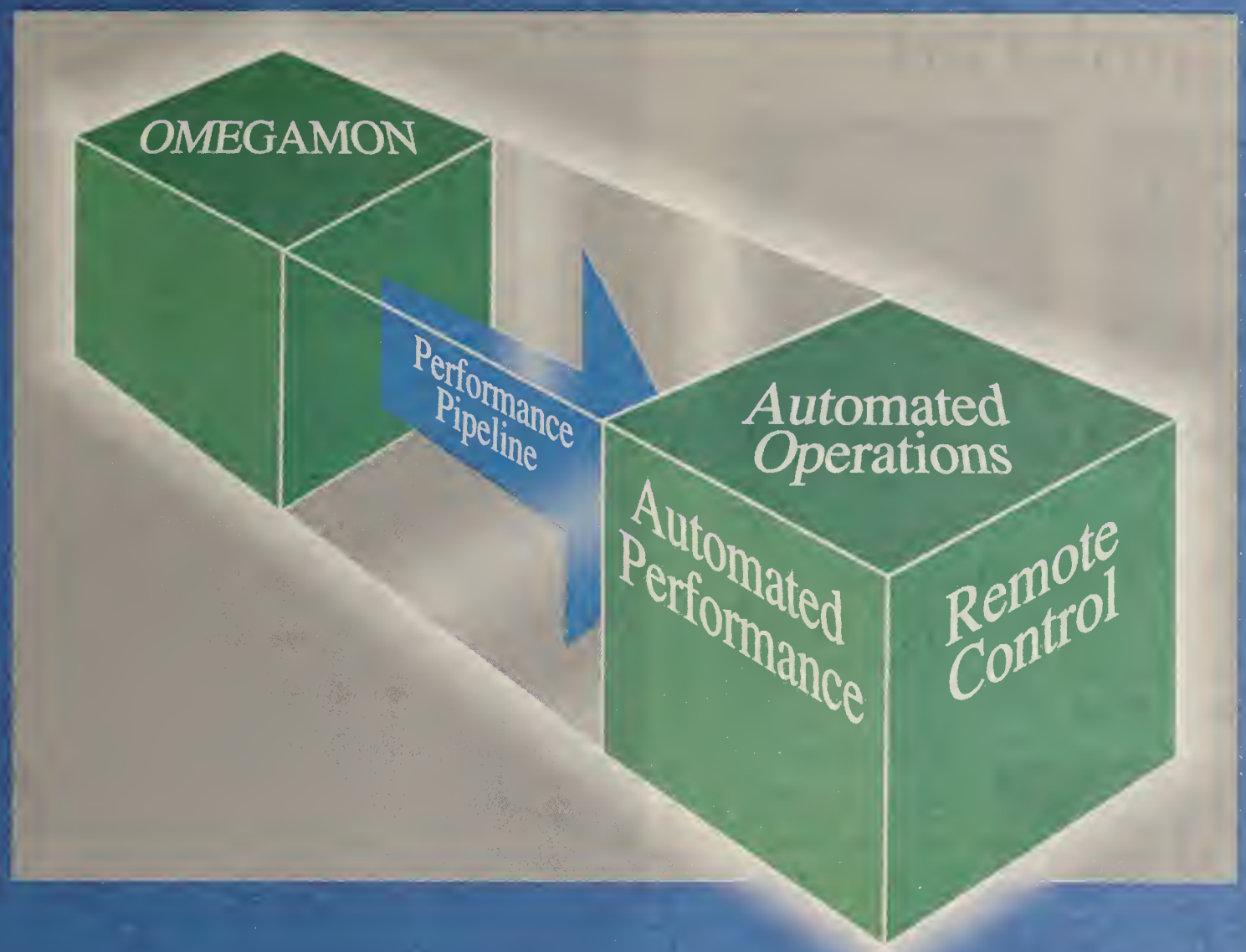

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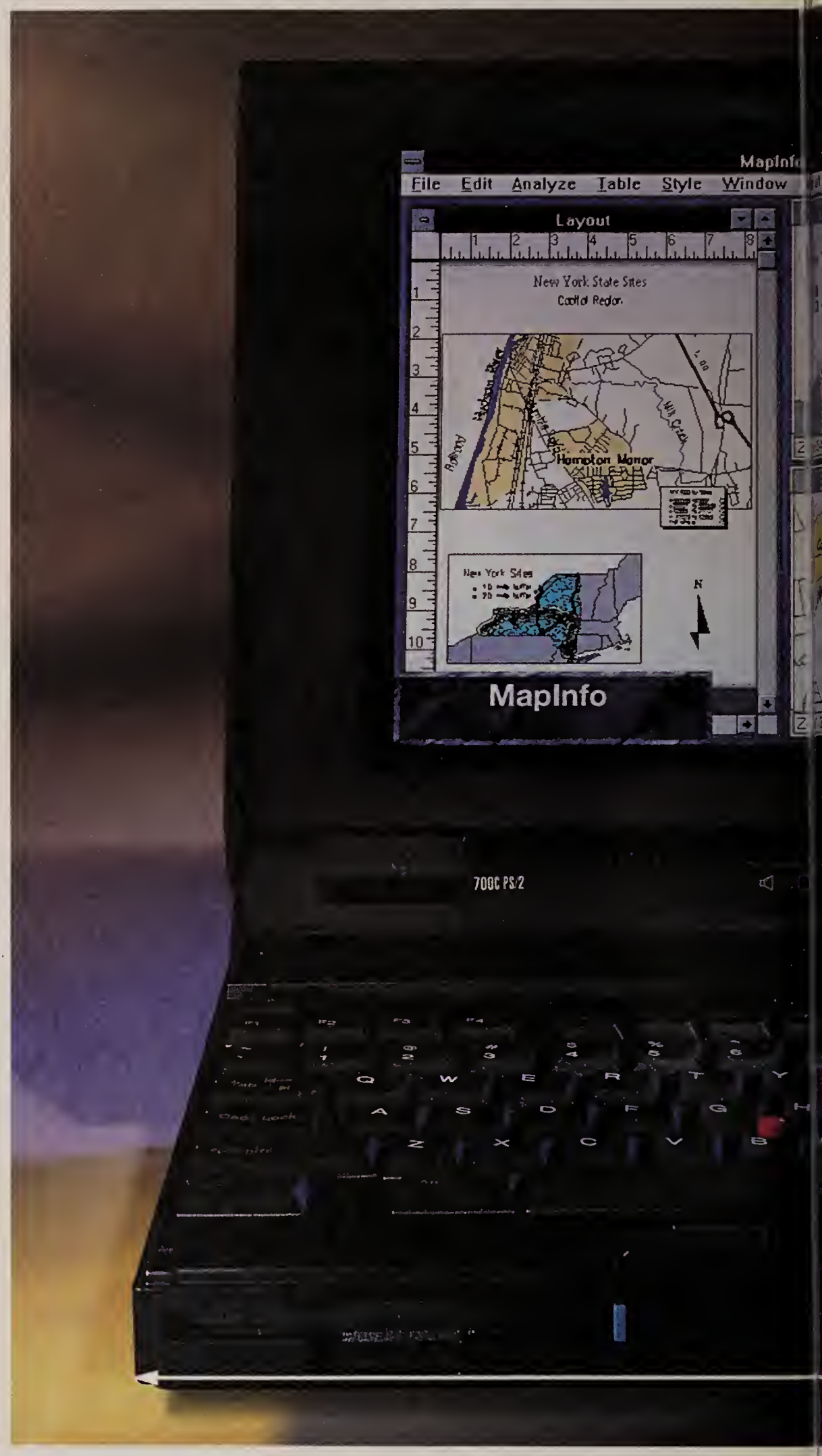

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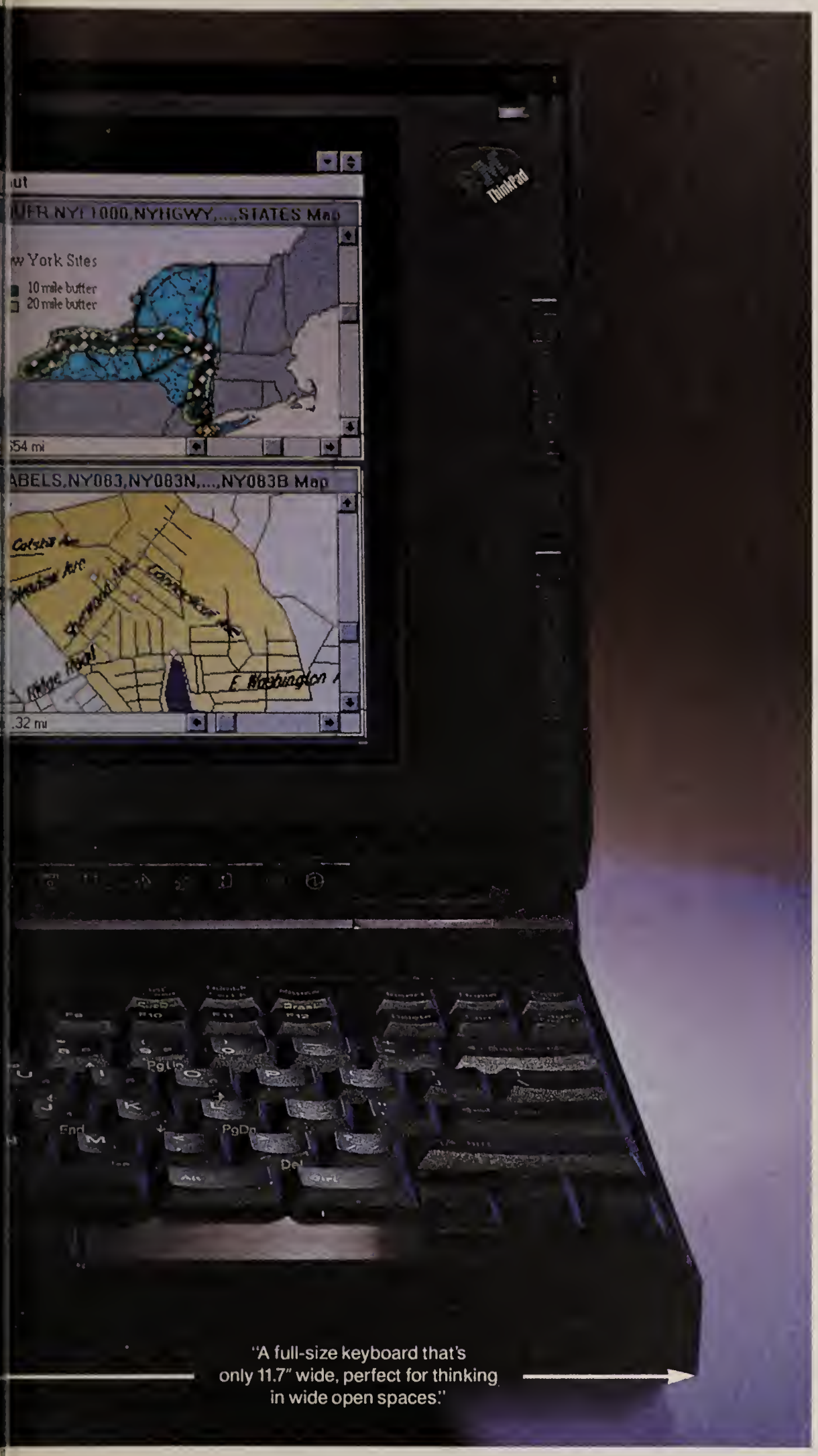

700 series screens rival desktop display clarity. All screens are eminently readable and adjustable. In fact, everything about the ThinkPad is engineered to make life easier, from the full-size keyboard to the front-loading diskette drive. Some even have removable hard disks for easy upgrades, security and virtually unlimited storage.

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Battery Life†	2–4 Hours	3.8–7.5 Hours	4–10 Hours
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CIM worries don't stall USAF overhaul

CONTINUED FROM PAGE 1

across all U.S. military branches.

Materiel's consolidations "are still meaningful" as an initial step to these broader plans, "provided we do it in lockstep with what the DOD is doing," said Paul Shahady, assistant deputy chief of staff for communications computer systems at Materiel. Otherwise, "we'll have to do the whole thing all over again" as part of the broader CIM effort, he added.

"It's a real trade-off," said Maj. Jack Stackhouse, chief of systems engineering and office automation programs at Materiel headquarters. "We have to look at what CIM will come down with and [yet] incorporate changes" that are necessary in the interim. For example, he said, "in some cases, such as database consolidation, it is advantageous to spend money [now]; in others, it is not a given that CIM will bring standardized systems across the DOD."

How much of Materiel's own IS facilities and projects it will retain during the next few years is another concern. A newly released CIM directive called Defense Management Review (DMR) 918 will give "overall responsibility" for data processing installations, central design and software activities to a central DOD agency, Shahady said. "At this point, we don't know how many computer assets will remain in Materiel."

The upcoming changing of the guard in the U.S. government will cloud not only the fate of Materiel IS projects, but also the fate of broader CIM efforts proposed by Director of Defense Paul Strassman, according to Jim Kerrigan, a private consultant based in Reston, Va.

A major upheaval in the executive branch, such as the one now in progress, tends to disarrange even seemingly solid projects such as CIM, said Kerrigan, who was the senior official of the Treasury Department at the time of the last party change in the administration, 12 years ago.

"So Materiel's modernization efforts may end up being more valuable than they expect. In this period of uncertainty, there are no guarantees that any major defense program will continue intact," Kerrigan said.

Indeed, Air Force logistics modernization projects have had a history of being shunted from one program to another, Kerrigan said. At one point, the Air Force Computer-aided Acquisition and Logistics Systems (CALS) project was canceled, and the Air Force was told to use the Army's CALS program, renamed Joint CALS. "That's been moving along, but it's not clear how much the Air Force has embraced it."

Materiel is the result of a merger, finalized in July, that combines Air Force Systems Command, which handles the design through acquisition phases of weapons systems, with Air Force Logistics Command, which handles maintenance, deployment and supply. Based at Wright Patterson Air Force Base in Dayton, Ohio, Air Force Materiels Command comprises some 126,000 civilian and military personnel, who are responsible for 52% of the budget and all weapons systems development within the Air Force.

Christoph Abbrederis

Materiel expects a 10% to 30% reduction in overall personnel as a result of DMR directives during the next four years. In line with these reductions, the merger's central aim is to improve weapons' effectiveness and readiness within the Air Force by streamlining and consolidating the organization that handles weapons systems, all the way from research and development to the end of the system life cycle, Shahady said.

Prior to the merger, Systems Command would manage all Air Force requests for proposals through production stages of a new weapons system and then hand them over to Logistics Command, which would take care of deployment and maintenance.

Now, Air Force Materiels Command appoints a system program director to oversee the entire process and resolve any conflicts between Logistics, which wants the most "sustainable and maintainable" weapons possible, and Systems, which wants to "field the most capable weapon system possible," Shahady said.

Part and parcel with the merger are projects to consolidate and standardize IS and "make computer support a commodity across the whole command," Shahady said.

Materiel is far from such uniformity. Logistics follows a centralized systems philosophy based primarily on IBM mainframes. Systems, with its heavy emphasis on R&D of weapons systems, has supercomputer centers that house Cray Research, Inc. supercomputers and client/server systems combining Digital Equipment Corp. VAXclusters and a mix of local-area networks. The latter include Novell, Inc.'s NetWare, Tiara Computer Systems, Inc.'s 10Net, Transmission Control Protocol/Internet Protocol and the International Standards Organization's Open Systems Interconnect (OSI).

Ultimately, Materiel hopes to migrate to a client/server architecture based on standards such as Posix and OSI to ensure interoperability, if not uniformity, across the various systems. It is trying to keep to the Government OSI Program and other DOD directives.

The command also hopes to save between 13% and 30% in recurring operating costs from the move, based on the results of similar projects, Shahady said. Materiel's IS budget (hardware and software, not personnel salaries) is $425 million.

The Systems side of the house is three years into a project to migrate to a standards-based client/server environment by the late 1990s. However, the Logistics side is less eager to throw out the host systems that it has just spent millions of dollars modernizing and consolidating, Shahady indicated. Started in the mid-1980s and slated for completion within 18 months, that project is expected to realize a savings of between $70 million and $75 million from the consolidation of 44 IBM MVS hosts down to eight, housed in five data centers, he added.

The logistics modernization effort is one Materiel project that is in danger of being made obsolete by upcoming CIM initiatives, Shahady said. In particular, the DMR 918, still in the planning phase, "will call for another round of consolidation because Strassmann's vision is to create megacenters servicing large chunks of the customer base" across the Army, Navy and Air Force, he added.

Shahady expressed the hope, however, that Materiel's current consolidation efforts will become the initial steps to the full, DOD-wide consolidation under CIM, which is not expected to be completed for another seven to 10 years.

Some ongoing Materiel projects may be turned over to the Defense Information Systems Agency (DISA) when DMR 918 kicks in, Shahady said. Even so, the effort will not be wasted: "We can say, 'We tried this; it works. Here, DISA — we recommend you implement it,'" Shahady said.

Colossal consolidation

Another high-priority project now in the works at Air Force level involves consolidating "base-level" systems scattered across various Air Force bases into five regional processing centers running Unysis Corp. Model 622 hosts.

These systems will run applications such as personnel, finance and budgeting for the entire Air Force, said Paul Shahady, assistant deputy chief of staff for communications computer systems at Materiel.

The project, which was initiated by the DOD under Defense Management Review 924, involved moving from more than 300 mainframes, minicomputers and superminis to 21 large Unisys mainframes.

So far, two centers are up and running, with the rest slated to be on-line by May 1994.

Other Materiel projects also have the potential of feeding into the broader CIM effort. For example, the center is now combing Materiel command bases in search of "best-of-breed" office automation, network, electronic mail and business process support applications.

The aim is to ensure that each time a new weapons system is initiated, the task force team put in charge has a "set of packages that we've proofed and tested, so we don't have to reinvent the wheel," according to Shahady.

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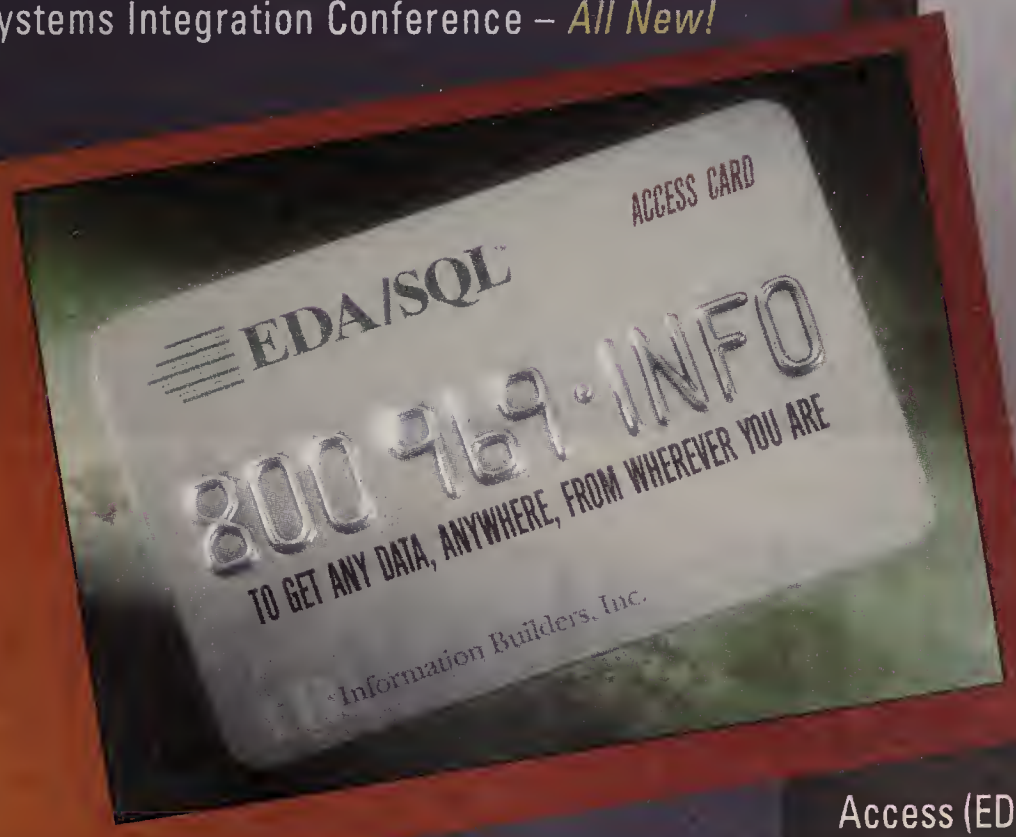

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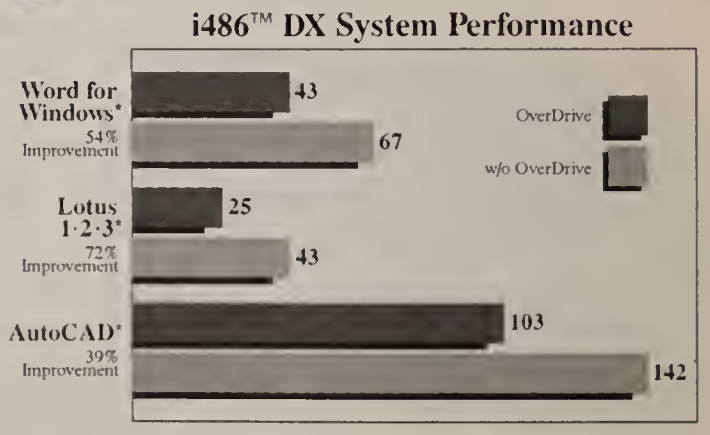

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SAS unveils initial packages for Windows

Spreadsheet, executive information systems, data analysis and natural languages tools bow

BY GARY H. ANTHES
CW STAFF

CARY, N.C. — SAS Institute, Inc. last week introduced its first set of products for Microsoft Corp.'s Windows. The products — six are new for the desktop and the others were released earlier for IBM's OS/2 — have been shipped to 680 beta-test users and will be generally available early next year.

SAS for Windows 3.1 is targeted at applications developers and end users. It includes a spreadsheet package, object-oriented tools for building executive information systems, a graphical data analysis tool and a natural language query tool (see story below).

The Federal Reserve Bank of Chicago uses SAS products in its research department for economic modeling and forecasting, and it recently added the Windows products to its stable of SAS products for MVS, DOS and OS/2 Release 1.3. Windows will provide a bridge solution for 100 users moving from DOS to OS/2, said Scott Johnson, a programmer at the bank.

Johnson said that at present, most user workstations — 80386-based, 20-MHz machines with 8M bytes of memory — are not hefty enough to run OS/2 well but are adequate for Windows. The bank will transition its applications from DOS to Windows to OS/2 as more powerful workstations are brought in, he said.

Johnson also said analysts would use the new SAS/Insight tool for data visualization, "to get an early feel for what the data looks like." He said it should be a big improvement over the text-based graphics from the DOS-based SAS products.

US West in Englewood, Colo., has the SAS Windows release and is planning to convert existing DOS licenses for 50 users to Windows when the production release is available.

Marvin Schwartz, systems programmer, said the company will probably move to Windows New Technology (NT) when it is available next year. "True 32-bit multitasking would be desirable because SAS is such a big product. [NT] would handle it better," he said.

No enhancement

Some users said they are unhappy with SAS' decision to support but not enhance the DOS version of SAS.

"There are researchers in our labs who are not interested in moving to either OS/2 or Windows," said Larry Bridges, corporate SAS coordinator at Eli Lilly & Co. in Indianapolis. "SAS has frozen [PC SAS 6.04], forcing the customer to go to either OS/2 or Windows."

An SAS spokeswoman said SAS will continue to support the existing release of SAS for DOS but cannot bring it forward because the operating system will not support the memory and graphical user interface needs of the newer SAS products.

SAS developed OS/2 versions of its desktop products first but found demand for Windows "overwhelming" and "surprising," according to Randy Betancourt, manager of workstation systems group sales and marketing. He said the clamor for Windows was spurring SAS to speed development of the Windows NT release.

SAS said it will release a beta-test version of the SAS System for OS/2 2.0 this week, a version for Unix in the second quarter next year and one for Windows NT in mid-1993.

Opening Windows

Desktop products introduced with the SAS System for Windows 3.1 include the following:

•**SAS/Calc:** Spreadsheet package that supports 120 functions, including three-dimensional views.

•**SAS/EIS:** Object-oriented development environment to build EISs.

•**SAS/Lab:** A sophisticated statistical tool for laymen.

•**SAS/Insight:** An interactive graphical data analysis tool.

•**SAS/English:** A natural language interface for retrieving data from external sources and SAS data sets.

•**SAS/Access for PC File Formats:** Provides links to the major database management systems.

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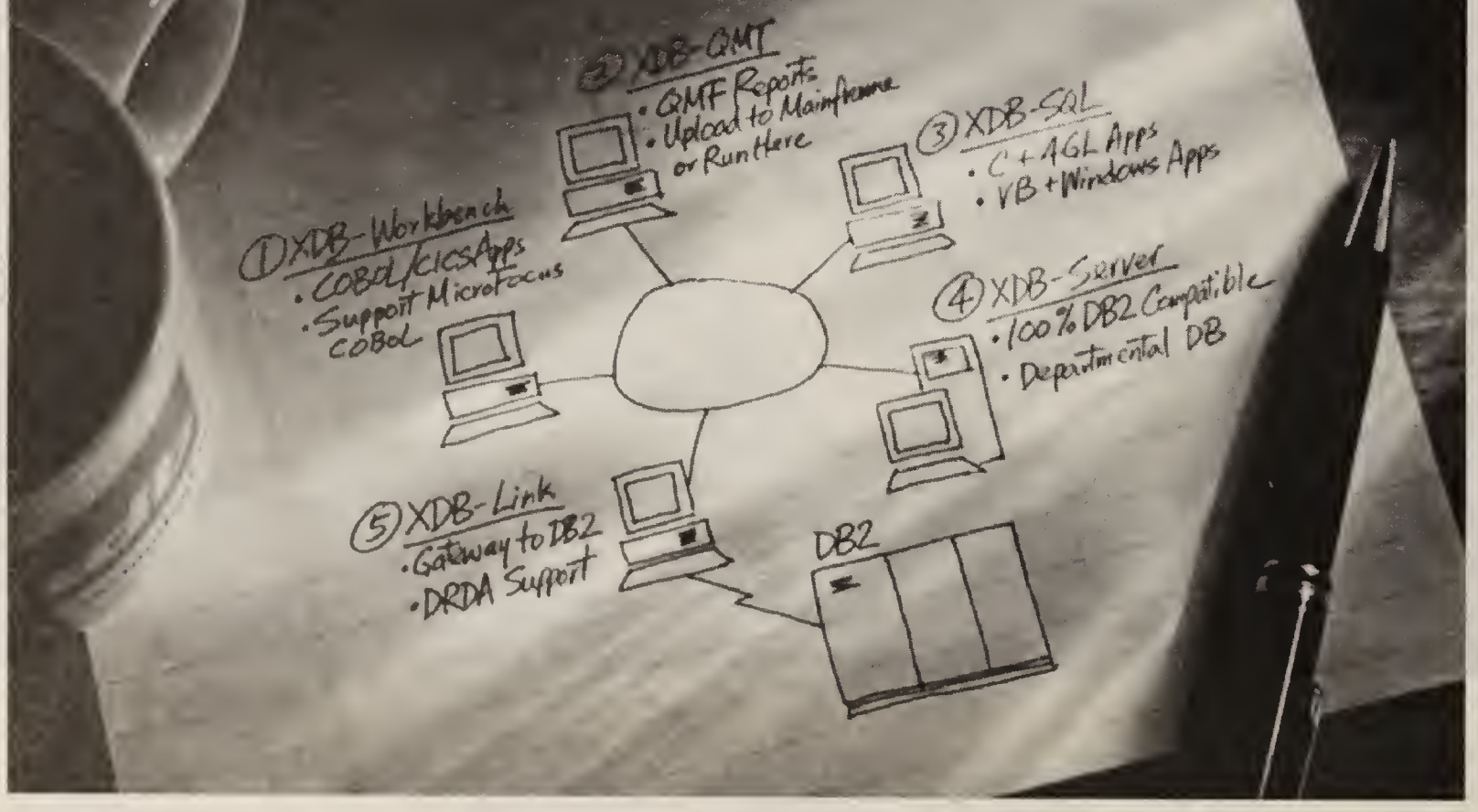

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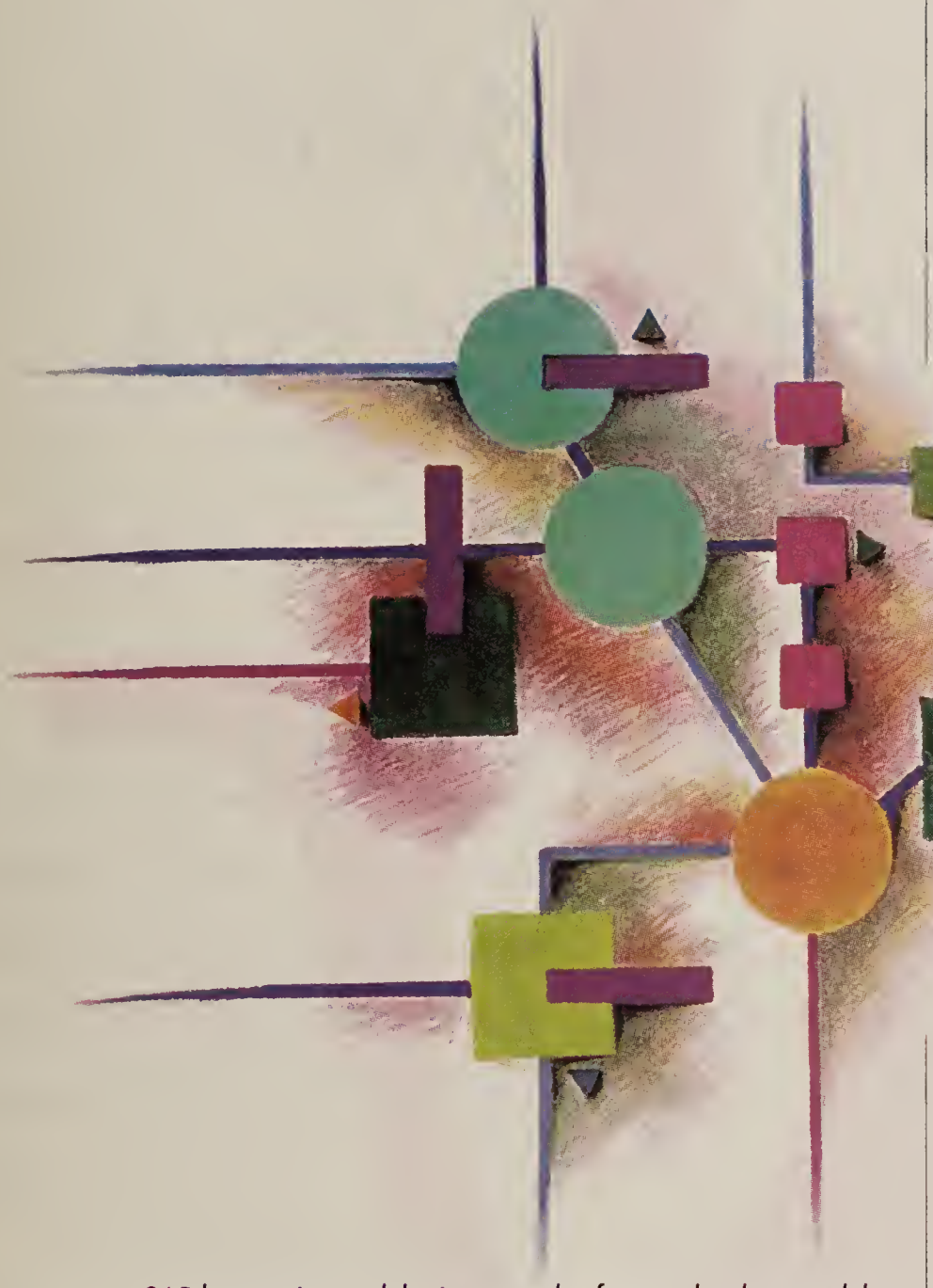

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ADVANCED TECHNOLOGY

Now playing: A medley of your favorite data

IBM would use phonograph-like setup to store up to 100 times more information than today's disks

BY KIM S. NASH
CW STAFF

Imagine a high-powered, supersensitive phonograph. A needle made of silicon nitride glides over a polycarbonate surface — the same material compact discs are made of. A small cantilever spring shifts when the tip meets a bump or dent, and these movements are measured with the laser beam down to the angstrom — about the size of a single atom.

Scientists at IBM's Almaden Research Laboratories in San Jose, Calif., are experimenting with such a system, and they are finding it yields impressively high storage capacities. Almaden's atomic force microscope (AFM) is at the center of the technique, which allows for about 100 times more capacity than a like-size optical disc.

Like a compact or optical disc, the AFM system records data in the form of tiny pits, but the pits are much smaller, each measuring one micron in diameter, or one-fiftieth the width of a human hair. The method can write 30 billion bits of data per square inch at a rate of about 100K bit/sec. That is about 10 times slower than a CD and among the more serious hang-ups to getting this technology to market.

Viable commercial products are not just around the corner, acknowledged IBM researcher Jonathan Mamin, who has studied so-called scanning probe techniques for five years. "We're making progress all the time," Mamin said, but the following technological hurdles remain:

•**Reading.** Speed — or a comparative lack of it — is the main problem with reading data this way. Reading takes a few seconds per individual pit. During the fastest demonstrations using the AFM, researchers have achieved speeds of 100 KHz, whereas CD technology operates 10 times faster at minimum.

•**Writing.** Speed is also an obstacle in writing data, but for a different reason. To record data using scanning probe methods, the tip of the stylus must be heated so it can soften and "burn" marks into the recording surface. The tip then has to cool down for a few seconds before it can be used to write again. Researchers are working on ways to release the heat faster.

•**Arithmetic.** There are other practical considerations besides speed — namely, economies of scale. For instance, manufacturing the tiny cantilever spring setups requires a huge effort right now in the field of micromechanics — the science of making nearly microscopic machines.

Some groups in the automotive industry are building mechanical contraptions, but no one is doing so currently in this field.

The cantilevers the Almaden lab uses in its demonstrations are commercial products but are not optimized for data storage purposes. Mamin said the lab hopes to start constructing its own springs. However, production requires machinery and clean-room precautions like those used in silicon processing, a large financial and technological hurdle.

Helical scanning

IBM and partner Ampex Systems Corp. in Redwood City, Calif., plan to develop high-speed, online archival storage systems capable of delivering trillions of bytes of data for scientific, engineering and commercial applications.

The project will be spearheaded by Adstar, IBM's San Jose, Calif.-based storage system unit, which will provide its data management, systems integration and subsystem control expertise. Ampex will contribute its experience in the use of helical scan recording.

Helical scan recorders are found in video gear; unlike linear tape systems, they use a spinning cylindrical read/write head around which the magnetic tape is wrapped.

A prototype of the storage system will be placed at the University of California Lawrence Livermore National Laboratory in Livermore, Calif.

ELLIS BOOKER

Bell Labs: Research first, commercialization later

The first in an occasional series of interviews with computer scientists conducted by Ellis Booker, Computerworld *senior editor, advanced technology.*

Ravi Sethi

Rovi Sethi is director of the Computing Science Reseorch Center ot AT&T Bell Loborotories. He joined Bell Labs in 1976 os o member of the technicol stoff and in 1987 wos oppointed heod of the Computing Principles Reseorch Department. Before joining AT&T, Sethi was on the foculty of the computer science department at Pennsylvonio State University.

AT&T Bell Labs, located in Murray Hill, N.J., employs more than 1,000 scientists in four subject oreas: physics, computing, communications and materiols.

What's the mandate of AT&T Bell Laboratories?

We're a research center. [That means] we don't start out asking if something will be a commercial product. We don't want to be blindsided by changes. Rather, we want to look at technology trends independent of commercial possibilities. When it comes to commercialization, other units within AT&T, and now NCR Corp., handle it.

Given that, isn't it difficult to coordinate the lab's activities?

My other hat is more relevant [to that]. For all Bell Labs' research, I am a coordinator, or contact, for NCR. I facilitate contact between the research people and NCR.

Is there an overall direction to the research and development?

Some of the things we're working on are a natural outgrowth of things the company is interested in: distributed systems, for example.

Part of research's role is to be prepared for technology *before* the company needs it. When someone in the company comes along and says, "We need help with a particular technology," we don't have time, at that point, to look at the textbooks. When the need arises, we'll have experts or contacts or know where to look to find them.

[Also,] no matter how large an organization, it can't cover everything. So we make guesses. For instance, we might explore the limits of certain techniques and technologies.

How long does research take before it reaches fruition?

Some things that we do, the time horizon can be measured in five or 10 years. Not because we aim that far but because it may take that long to get something into commercial use.

For example?

We're exploring data communications at very high speeds. There's an experimental network connected at 45M bit/sec. to the University of California at Berkeley.

The questions we are exploring include: What happens when you have such speeds available? What applications will that [infrastructure] lead to? If we were to have high-speed communications, this might change where the computer, the compute engine and the display is [located].

Looking back to when you joined Bell Labs in 1976, what didn't you anticipate?

At the time, I personally could not have predicted the rise of PCs and PC software. Here at Bell Labs at the time, much of the emphasis was on Unix.

What technologies do you think are going to cause the biggest changes?

Personally, I'm looking at the way people use the PC on the desk. The fact is, 10 or 15 years ago, people were looking at the efficiency and performance of the processor and of disks. Those are not constraints today. [In the future], one's personal requirements will determine the interface.

How has the use of technology changed in your own office?

The use of E-mail. I've been using it since 1976, but only within the last three or four years have we been organizing the messages using Unix tools. I prefer getting E-mail, since I can manipulate it and still have access to it. I work three or four hours every day at home. It's very convenient to have access to everything [remotely]. I just came back from two weeks in Spain, and it was wonderful not to call in — but it's wonderful to have the option.

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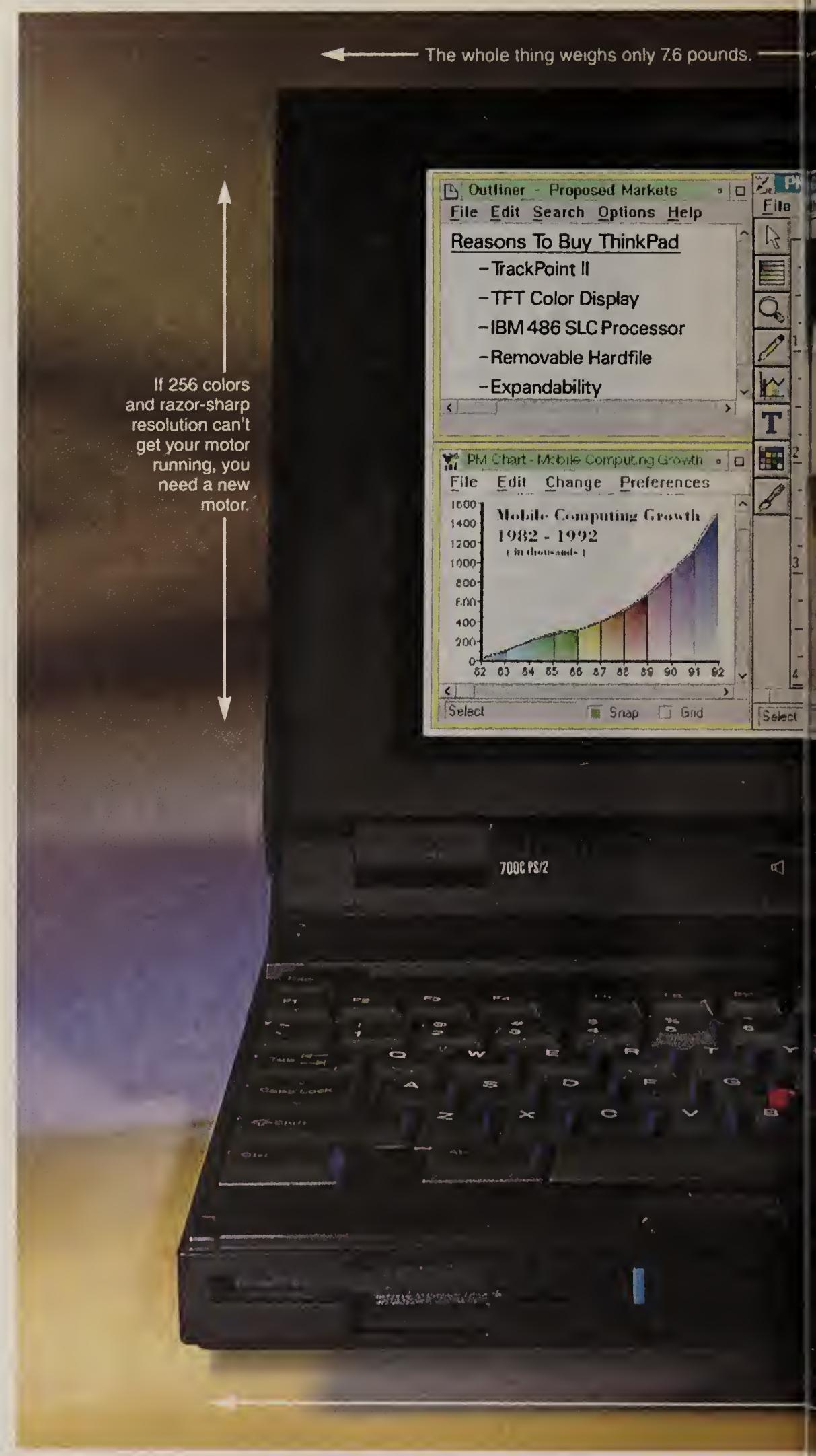

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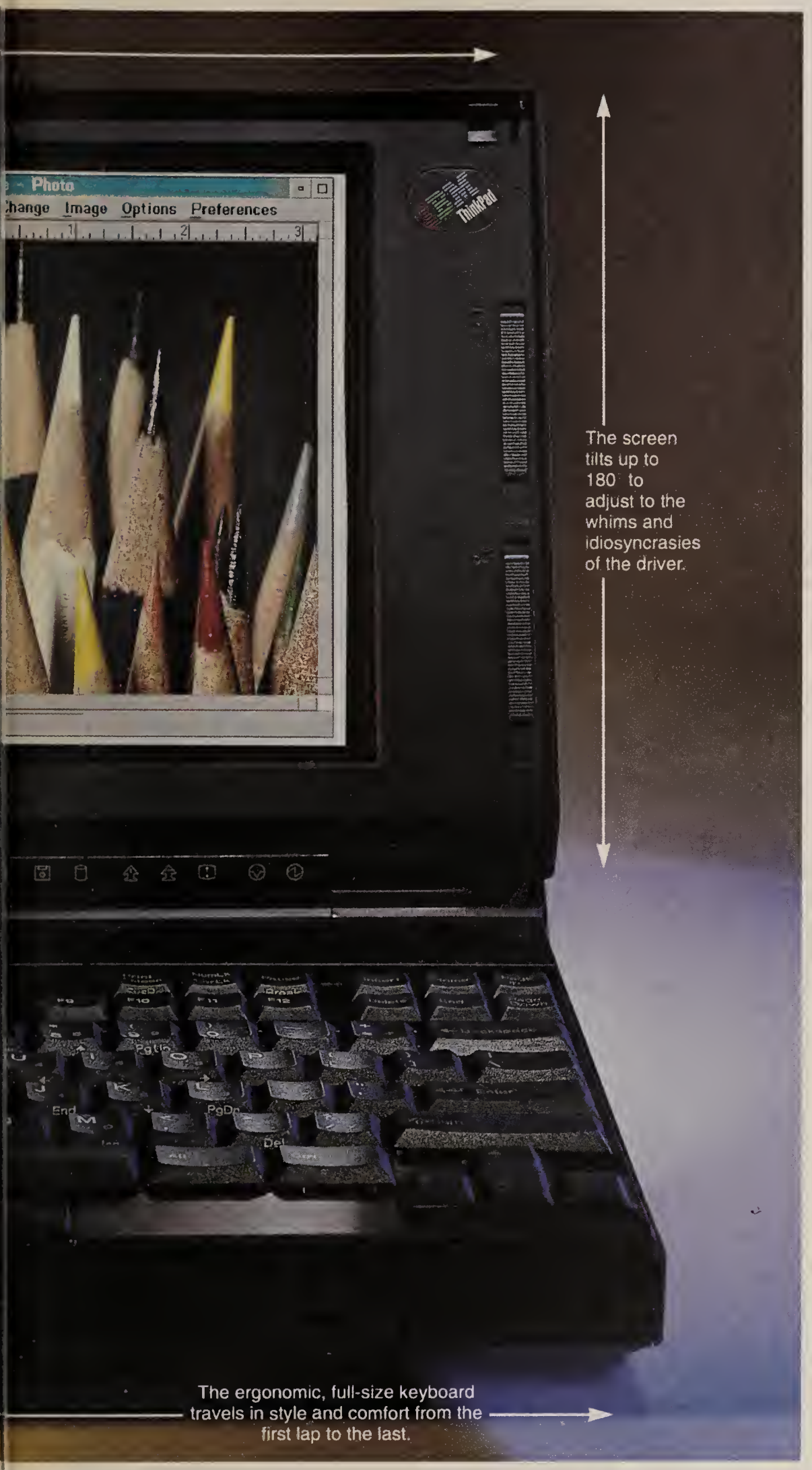
Its father wa



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EDITORIAL

Workgroup woes

Could it be, as Yogi Berra once said, deja vu all over again?

If you think back about a decade, the IS community was caught unawares when what started as a trickle rapidly built to a tidal volume of PCs entering the workplace. IS first rejected the machines as toys and erected barriers, but they did little to impede the flow.

Thus, a new paradigm in computing was launched. And while computing came to the professional masses, it came at the expense of many benefits that could have been derived had IS management jumped aboard the PC bandwagon and facilitated the move to end-user computing.

Thankfully, times have changed, and IS management today plays a pivotal role in the acquisition of PCs. In the 1990s, the emphasis is moving from personal productivity to the productivity of the so-called workgroup. A slew of new productivity tools, led by groupware products such as Lotus' Notes and Microsoft's Windows for Workgroups, are touted as the glue that will bind disparate PC applications and form integrated workgroup productivity environments.

Microsoft is planning to sell about $400 million worth of Windows for Workgroups in the next 12 months, and that might be a conservative figure. There is demand for the product, but IS is not registering much enthusiasm at this point. There should, and needs to be, more interest — if for no other reason than the product and others similar to it are coming, like it or not.

To be sure, IS has very valid concerns about these products. The Notes product, for example, has the unique capability of replicating databases throughout the network. Should the people who are responsible for data integrity and data security be concerned about this? Darned right they should.

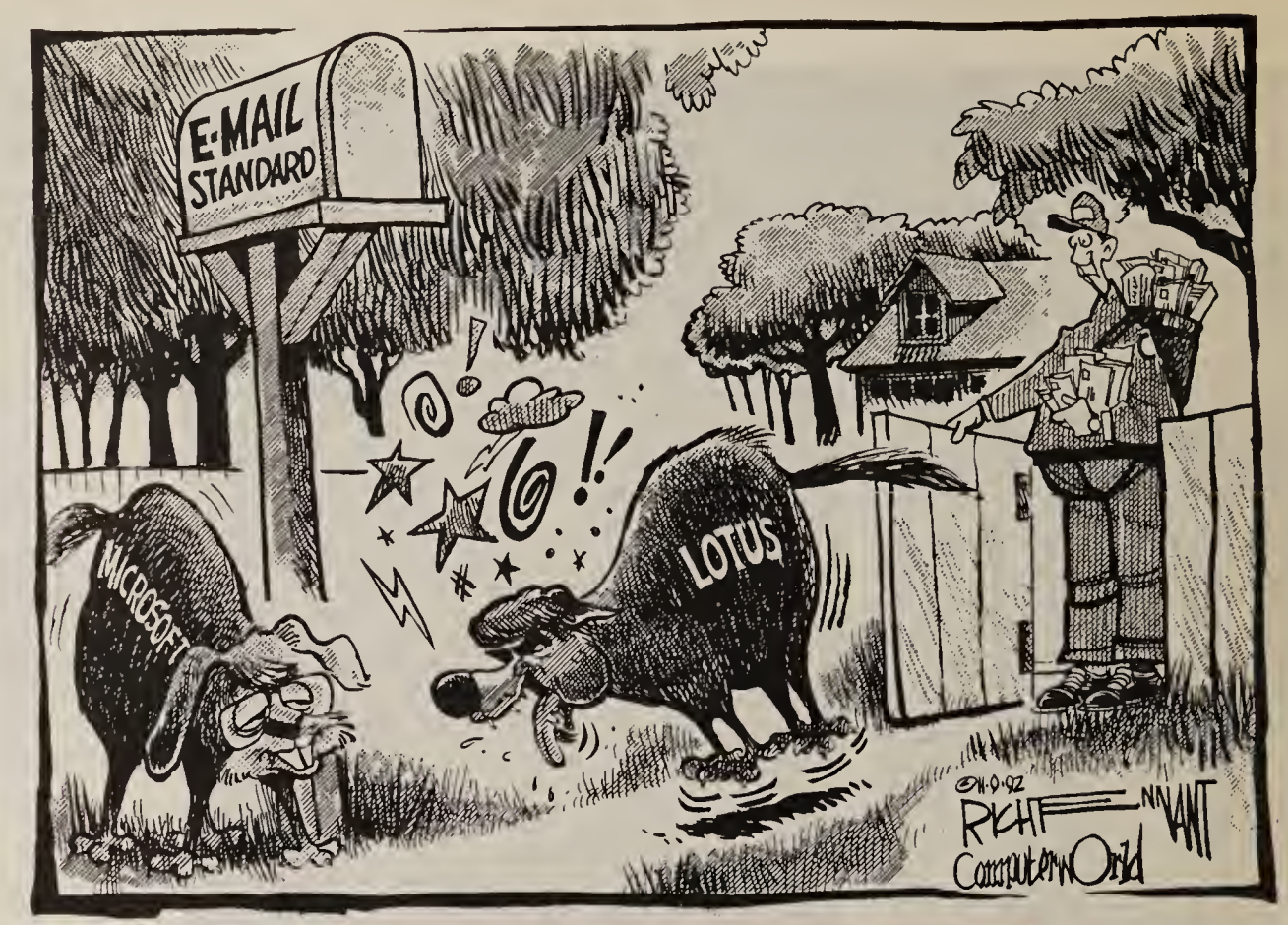
IS, in general, is also being heavily scrutinized as it searches for metrics to prove the value of information technology expenditures. The attitude of many vendors, including Microsoft, is that the products they throw into the market will generate new and highly productive applications over time. There aren't many IS managers who would bank on that kind of payback.

So some healthy skepticism to this emerging class of products is understandable. But broad-based rejection, tacit or otherwise, would really be nuts. The users of products that target small groups of corporate users, like Windows for Workgroups, will soon seek ties to higher order networks and databases for more comprehensive, user-driven applications.

It will be vital for IS managers to play a key support and education role if user departments are to better understand what it is they are getting into, and what they can reasonably expect from their workgroup computing systems. Anything less would be abrogating a key responsibility, as well as ignoring some of the most difficult lessons of the past.

Bill Laberis

Bill Laberis, *Editor in chief*



LETTERS TO THE EDITOR

Good reason why Johnny can't get A's in programming

Regarding the Viewpoint article "Why Johnny can't get A's in C programming," by Edward Nilges [CW, Sept. 21]: I first became involved with PCs in 1982. After several days of studying C programming, the best I could say was that the syntax was extremely archaic, depending on 1s and 0s and special characters instead of real words.

When a co-worker was involved in a C coding project with three other programmers from Iran, India and Sweden, I realized that, for someone whose native language is not English, squiggles and wiggles are probably easier to comprehend than English words.

C is just plain weird, and therefore experienced people subconsciously criticize and reject it, whereas novices, with no basis for comparison, will accept it more easily.

As to whether the foreigners are "clearly" a "better buy" just because they work for a smaller salary, Nilges totally neglected the issue of verbal communication skills.

Communicating with someone who does not have English as a native language can be a significant problem when attempting to discuss system design and operation. It can also cause major misunderstandings and project delays, despite the technical capabilities of the person in question.

It is interesting that an article on the same page tells us that price is only one factor to consider — others being quality, support and vendor accessibility.

Nicholas J. Andrelli
Alexandria, Va.

Three out of five ain't bad

Your Oct. 12 issue had a product evaluation of Amdahl's 5995M on the front page with a comparison chart against IBM's ES/9000 Model 900.

Despite the fact that the ES/9000 scored better than Amdahl's 5995M on three of the five primary attributes you rated, including reliability and performance, your description over the chart only refers to the one area where the Amdahl had a higher rating.

I have for a long time been aware of your bias against what you appear to regard as the Big Blue monster, but so obvious a bias in the face of results from your own evaluators casts doubt on the impartiality of what should be straightforward reporting.

In the light of this and other such opinions very lightly masquerading as articles, I am canceling my subscription.

Thomas M. Cahn
Westbury, N.Y.

Missing CASE

In the recent package on the successes and failures of CASE, "All a state of mind" [CW, Oct. 12], it is remarkable that no mention is made of software engineering.

CASE stands for computer-aided software engineering, and if you're not practicing software engineering, CASE can't help you. Research indicates that few organizations have a software development process that is sufficiently mature to benefit from CASE.

Andrew Raybould
Jersey City, N.J.

Dead and buried?

If the advent of client/server applications has killed and buried the mainframe, how come all three of the client/server success stories you wrote about in your Oct. 12 edition ["Distributed systems: Tough to take root"] rely on mainframes for their server component?

Howard Glassman
Seattle

Could Oracle be the culprit?

The article "Software makers fear downsizing toll" [CW, Oct. 26] quotes software manufacturers, particularly Oracle, as lamenting the shift of sales to client/server platforms at the expense of IBM mainframe and VAX minicomputer sales.

Could it be that companies such as Oracle, which charge up to 10 times more for a minicomputer license to support the same number of users as for a client/server platform license, are in fact a major cause for the shift?

Tom Quinn
St. Paul, Minn.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor in Chief,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail:* COMPUTERWORLD. *Please include a phone number for verification.*

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Dismantle the pyramid and share power

HARVEY R. SHREDNICK

Information services at Corning, Inc. are now going through significant changes, and soon my role will change, too.

We realize that IS is no longer a corporate staff function but a services-for-sale business that must compete with outside providers on quality of service and cost-effectiveness.

Because of this, we have begun to seek total customer satisfaction by moving power and responsibility into the hands of those closest to the customers.

Roughly 40% to 50% of the IS staff is now involved in self-governing, high-performance teams that have the authority to make major decisions without being hamstrung by a chain of command.

It is easy to build a business case for empowering individuals in this way. Our customers' expectations are increasing. They are demanding world-class levels of performance and significant cycle time improvement.

IS is being measured on the effectiveness of its leadersip in promoting an agreed-on technical strategy, the speed of its response to problems, the clarity of its communications and the value of its contributions. Meeting these kinds of expectations requires finding new ways of working that encourage openness and allow each employee to develop to full potential.

At Corning, this means IS teams make hiring and firing decisions, estimate budgets, suggest merit increases and tell us what training they need.

> I CAN'T ASK the managers, supervisors and directors in the organization to give up control unless I'm willing to do the same.

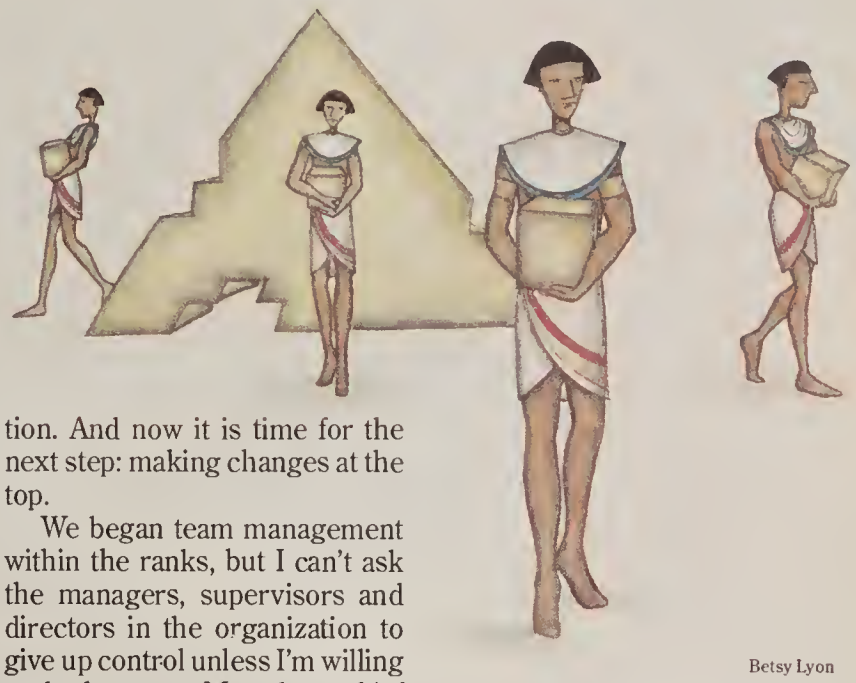
Acquired ability

This type of change does not come automatically or easily at first. It is a learning process, but one that is well worth the effort.

I remember one occasion when I brought in a new director in one area, and the people came to me and said, "Harvey, how dare you bring someone in without allowing us to interview him!"

The next time a position opened up, I made sure I didn't repeat that mistake. This time, the team went through an extensive interview process with the person proposed. In the end, this person became the team's candidate, someone they really wanted and pushed for.

This thing called empowerment is real dynamite. We have already seen measurable, continuous improvement in service quality, error reduction, operating costs and employee satisfaction. And now it is time for the next step: making changes at the top.



Betsy Lyon

We began team management within the ranks, but I can't ask the managers, supervisors and directors in the organization to give up control unless I'm willing to do the same. My role as chief information officer must also change.

Action words that have served me well over the years , such as "control," "manage" and "direct," must change to empowering verbs like "encourage," "coach" and "delegate."

If I am to achieve these goals, I must slowly but surely pull back from being a control figure and transform myself into a different kind of leader.

After the change

I see myself filling four key roles in the future:

- **MENTOR** to individuals within the IS organization, providing my perspective on career planning, relationship building and other important topics.
- **ADVISER** to other members of the IS leadership team, providing guidance on growing a service business, partnering with customers and developing high-potential IS staff.
- **CONSULTANT** to the Corning Executive Committee on the strategic and competitive use of information technology.
- **SPOKESMAN** to Corning's external customers on effective interenterprise deployment of information technology, strengthening relationships with our business partners.

This won't happen overnight. I expect it will probably take about three years. But I know I have to start because, if I am to persuade others to give up the power implicit in a hierarchical organization, I must lead by example. The entire organization will watch to see if I "walk the talk."

Shrednick is senior vice president of information services at Corning, Inc. in Corning, N.Y.

Confessions of an IS spouse

ALICE LESCH KELLY

I should have seen it coming before the wedding, when I asked my husband-to-be if he wanted to add anything to our gift registry list.

I read him my suggestions. "China, crystal, towels, sheets — anything else?"

"Yes!" Dave said, showing uncharacteristic zeal for our upcoming nuptials. "A Hewlett-Packard LaserJet printer. I think I have a picture of one on my desk."

Hmmmm.

Sure, it's great having access to a home office with as much computing power as the Pentagon and more software than can be found in all of Redmond, Wash. But sometimes, it can be trying being an IS spouse.

The first holiday after we tied the knot was one of those times. "See, I slip the Christmas cards right into the printer like this," my new husband explained proudly. "Then I do a merge with our address file. Voila! The cards are signed automatically in 14-point Old Gothic type. And the envelopes are printed in a nice 12-point Futura bold. See? We don't have to touch a pen. Now where did I put the red and green ink cartridges?"

Of course, all of our household bookkeeping is on-line. Writing a check used to be a simple matter of taking out the checkbook, grabbing a pen and writing. Now we boot up the PC, open up Quicken, load the checks into the printer, enter the name of the check recipient and the amount of the check....

The drive to build

I can see why Dave is so comfortable in the world of computers. It's all very workshop-oriented and certainly must bring out the home-improvement drive found in every Y chromosome. Without leaving his desk, my husband, who can be stumped by the prospect of hanging a picture on the wall, can immerse himself in a world of hardware, tool sets, workbenches and big iron. It's a world in which even the weak of muscle can be an empire builder.

That must be why computer people are so attracted to those railroad-building software packages. With little more than a nudge from the C prompt, the PC user can lay down miles of steel and create vast transportation networks that rival the history-making contributions of Andrew Carnegie.

My father worked for IBM for 32 years, so you can imagine how overjoyed he was when I brought home a boyfriend who worked with computers. And he was even happier when we got married. My father wasn't thinking son-in-law; he was thinking 24-hour on-call PC expert.

But their relationship has grown rocky lately. They aren't arguing Democrat vs. Republican or Toronto vs. Atlanta. To the dismay of my mother and anyone else who happens to be at the dinner table, they bicker over operating systems.

"OS/2!" cheers my father, whose blood runs royal Blue.

"Windows!" counters my husband, with Gatesian loyalty.

"OS/2!"

"Windows!"

It's like a Miller Lite commercial gone askew.

Left on the list

So, as it turns out, my husband and I did not receive a laser printer for our wedding.

"It's too bad we didn't get that printer," I said to my IS husband as we soaked up sun during our honeymoon.

"It's OK," he said. "I know how we can get the money for one."

"Oh?"

"We can return some of that china. Twelve of everything, can you imagine? Talk about unnecessary redundancy...."

Kelly, who keeps her china locked up, is a *Computerworld* copy editor.

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IBM to set identities for three PC lines

ANALYSIS

BY MICHAEL FITZGERALD
CW STAFF

The IBM Personal Computer Co. has rolled out its PC strategy, and now the question becomes: They have announced it, but who will come?

IBM has chartered its three product lines for different purposes: Personal System/1s for home and small-office buyers, PS/ValuePoints for corporations for which cost is a major concern or that want to avoid the dealer channel, and the PS/2 line for people who want everything IBM has to offer in the way of technology and service.

The real difference among the systems is not so much the underlying technology but rather the channel they sell through and the way they will be serviced.

The PS/1, a product for the masses, has three distribution channels, one for each family in the PS/1 line: The Essential sells through office products stores, the Expert through superstores and the Consultant through retailers such as Sears, Roebuck and Co. The PS/1 comes with a one-year warranty.

The PS/ValuePoint sells through both traditional computer dealers and an IBM toll-free number. Dealers sell the products for a lower price, but purchases made through IBM's direct line guarantee four-hour

Continued on page 38

Comparison point

ValuePoint series gives IBM three key PC product lines with some potential for overlap

	PS/1	PS/ValuePoint 433DX	PS/2 57 486SLC2
Chip	33-MHz 486DX	33-MHz 486DX	25/50-MHz 486SLC2
RAM/Max	8/32	8/32	8/16
Hard disk	211M-byte	212M-byte	212M-byte
Bus	AT	AT	MCA
Slots/Bays	5/5	5/5	5/4
Graphics	Super VGA (monitor)	Super VGA (monitor)	XGA2 (card)
List price	N/A	$2,349**	$2,855
Street price	$2,799.99*	$2,349**	$2,427
Warranty	1 year	1 year	3 years

* From a retail store
** IBM direct

CW Chart: Stephanie Faucher

Low price not the only factor attracting customers to suites

BY ROSEMARY CAFASSO
CW STAFF

The most well-known fact about desktop application suites may well be their low prices, but some users said there is actually more to these packages than their price tags.

Users of both Microsoft Corp.'s Office and Lotus Development Corp.'s SmartSuite said the packages streamline their support. They also offer consistency across applications, help to reduce training time and encourage users to work with more applications. Microsoft began shipping Office, which includes Excel, Word, PowerPoint and an electronic-mail license, in 1990.

Lotus in turn responded with SmartSuite, made up of Windows versions of 1-2-3, Ami Pro, Freelance and CC:Mail. More recently, it rolled in its personal information manager, The Organizer.

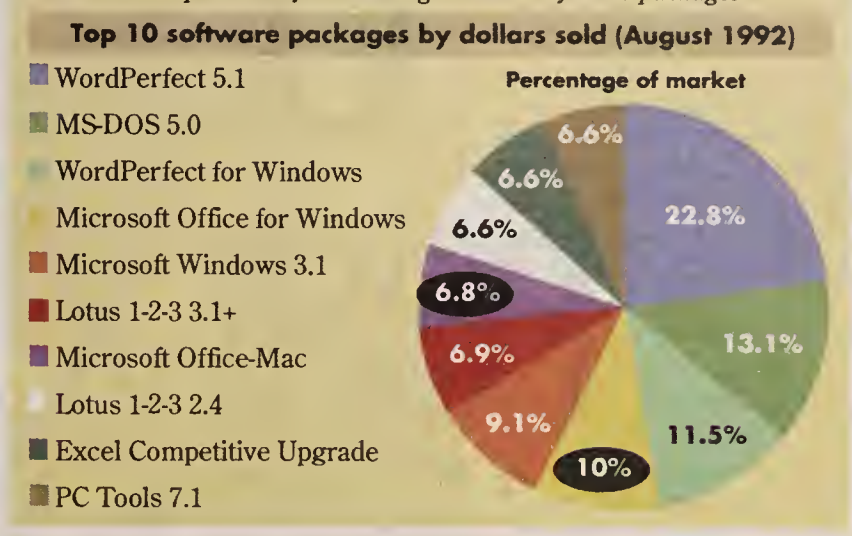
"The main reason [for licensing SmartSuite] was essentially the cost," said John Chamberlin, PC coordinator at the British Petroleum Ferndale Refinery in Ferndale, Wash. "It was pretty phenomenal — about $300 [per suite]," which translates to less than $100 an application.

However, "it wasn't until about four months later that people started blending the products and using the three packages together," Chamberlin added.

Chamberlin said he has not quantified training time saved as a result of the suite but said, "We are spending a lot less time supporting these people. Because of the commonality, the other packages come very quickly."

Finding their place

Microsoft's Office software suites established themselves in PC Research's Top 10 list of best-selling business software packages



Source: PC Research

CW Chart: Michael Siggins

He noted that users are also more willing to move beyond the spreadsheet and word processing packages they know well and try the graphics package. "There is a real increase in professionalism," Chamberlin said. "Maybe three or four people did memos that looked really spectacular. That has just snowballed."

Quality applications

Unum Insurance Co. in Portland, Maine, selected Office earlier this year. It said the key benefit has been its quality of applications. In fact, Unum did not care that it was packaged as a suite, according to Rachel Stamieszkin, manager of planning and development for distributed systems services.

"We didn't look for a suite," she said. "We picked [Office] because we thought it was the best of breed."

In fact, Stamieszkin said most of the 600 Unum users working with Office are not yet fully exploiting the application integration features. But they are working with what Unum considers the leading applications in each category. The insurance company has 5,800 users worldwide, and they will migrate to Office at their own pace, she added. Most will move from Lotus applications based on MS-DOS, so "they decide when and if they will get the value of changing their software."

Premark International, a holding company that owns companies such as Tupperware Worldwide, moved to SmartSuite this year when it switched from MS-DOS to Windows.

"Truthfully, it wasn't a cost issue at all," said Bonnie Becker, a systems analyst at Premark. "It was a service issue, and if Lotus products weren't good, we would have looked further."

Alpha database is music to composer's ears

BY CHRISTOPHER LINDQUIST
CW STAFF

Average viewers probably think little about the hundreds of pieces of music they hear while watching television shows. But it is Jonathan Wolff's job.

Wolff, owner of Burbank, Calif.-based Music Consultants Group, Inc., composes the music for several popular TV shows, including *Who's the Boss?* and *Seinfeld.*

For a long time, Wolff's music — snippets for between scenes and pieces to set a certain mood — were kept on tape and could be called up for use by the shows' producers. But finding them on a tape was not easy.

Wolff said he often found himself wanting to locate a piece of music, but he had no easy way to search through his lists. It was sometimes simpler to create new music than to search with his word processor and find the location of another piece. "It meant less time that I had to do music that absolutely had to be done," he said.

As a result, Wolff decided to have a database created where he could store and search through his music.

He asked staff member and system developer Steven Lack to meet his needs. Lack prescribed a relational database, and while he had worked with Borland International, Inc.'s dBase and Paradox products, he wanted something easier to develop with. To that end, he settled on Alpha Software Corp.'s Alpha Four.

"Everything is graphical," Lack said. "As we decide we have to modify the program, we do it."

Lack said Alpha Four also allowed him to create a completely menu-driven application that was easy for users to learn.

Lack stored the databases in five parts and created an interface that allows users to cross-reference the different databases quickly. The application lets users browse and select music cues and then create a "prelay" sheet, or list of cues for the show.

Wolff also found that by loading the database on a notebook computer he can bring it with him to dubbing sessions. If a producer decides that he does not like a particular piece of music, Wolff can look up a new piece quickly and pick another.

Lack said he hopes to create a link between the database application and a sound storage system on an Apple Computer, Inc. Macintosh. With such a link, Wolff could call up a piece on the database and immediately hear it on the Macintosh.

The current system still requires the user to load a tape and find the cue. But a totally automated system is still a ways off. For now, Wolff is happy to have just a little more time to make a little more music.

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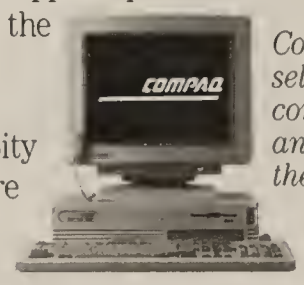

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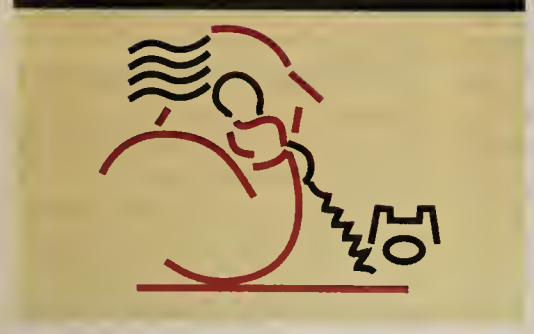
HELP LINE

Microsoft Word



Part of a continuing series of user tips drawing from questions commonly asked of PC software vendors' customer support lines. This week's focus is on Microsoft Corp's. Word.

Q Why don't I see my graphics on the screen when I import them into my document?

A You may be using draft view, which represents a graphic with only an empty frame.

To see if your document is in draft view, select the View menu. If a check mark appears next to the Draft command, choose the Draft command to remove the check mark.

If you are not in draft view and your graphic still does not appear, do this:
1. From the Tools menu, choose Options.
2. In the Category box, select View.
3. Clear the Field Codes and Picture Placeholders check boxes.

Q How can I border the contents of a table cell without bordering the cell?

A To border the contents of a table cell:
1. Select a portion of the table cell text.
2. From the Format menu, choose Border.
3. Under Line, select the line style for the border you want.
4. Choose the OK button.

Note: Repeat the above steps for each cell you want to border.

Q I don't want Word to display the last four files I opened at the bottom of the File menu. How can I remove them?

A If you do not want the last four files you opened to appear at the bottom of the File menu, do the following:
1. From the Tools menu, choose Options.
2. In the Category box, choose WIN.INI.
3. In the Application box, select Microsoft Word 2.0.
4. In the Option box, type "NoFileCache."
5. In the Setting box, type "Yes."
6. Choose the Set button.
7. Choose the Close button.

Q How can I find more information about fields?

A To learn general information about fields, do the following:
1. From the Help menu, choose Help Index.
2. Under Reference Information, select Field Types and Instructions.

To find information on a specific field type, do the following:
1. From the Insert menu, choose Field.
2. In the Insert Field Type box, select the field type for which you want more information.
3. Press the F1 key.

Eaton keeps on truckin' with portables

BY MICHAEL FITZGERALD
CW STAFF

GALESBURG, MICH. — Heavy-duty parts maker Eaton Corp. may like to rely on "proven edge" technology to get the most bang for its buck, but it comes close to the cutting edge in its intensive use of workstation power for parts design and its use of portables.

Eaton, No. 5 in its category in this year's *Computerworld Premier 100*, has proved that notebook and palmtop technologies work by sticking them in the competitive fires at its Truck Components Operations — North America (TCONA), a $1 billion-plus business.

Use of portables starts at the top.

Fred M. Kovalik, the company's general manager, is so fond of his Hewlett-Packard Co. 95LX palmtop that he sounds like a walking testimonial. "I'm hooked on this; I mean, I'm dead meat without it," he said.

Kovalik takes the toylike 95LX seriously; he basically runs his business from it. Kovalik has had several specialized applications built into its Lotus Development Corp. 1-2-3 spreadsheet, and he keeps "a lot of confidential financial information" on the palmtop as well.

Kovalik's custom Lotus spreadsheets were built not by his information systems department but by Phil Claussen, a marketing and engineering coordinator who happens to be computer-literate. Kovalik said he likes the 95LX because it frees him from carrying a briefcase full of paper and helps him stay organized.

Kovalik has basically stopped using the notebook computer that sits in his office. Two other executives also have 95LXs, though neither is a power palmtop user like Kovalik.

Notebook upgrades

Bigger portables are in demand in other parts of TCONA. While both the transmission division and the axle/brake division's sales and marketing forces use portables, the transmission group is ahead of the game. The axle division uses Compaq Computer Corp.'s SLTs, but the transmission group dumped 1987-vintage NEC Corp. dual-disk drive portables a year ago in favor of Compaq LTE 386S/20 notebooks.

An application developed in-house drove the move to notebooks. Larry Cook, manager of microcomputer administration and support at TCONA, said Eaton built its product specifications into a program so that when Eaton's sales representatives meet with a customer such as Kenworth Truck Co. in Kirkland, Wash., they can choose the best transmission for a specific vehicle.

"You can literally go through this and pick a transmission, such as whether you want a four-speed or a nine-speed, geared to what the customer wants," Cook said. "There were a whole bunch of things the sales force wanted to do with notebooks, but this was the one thing that was strong enough to get them to dump what we had and go to entirely new systems."

The application happened to require a Video Graphics Array screen and at least 1M byte of random-access memory, which ruled out the older NEC machines.

Kevin Horan

Larry Cook *says Eaton's Truck Components Operations staffers use Toshiba T4400s while testing trucks' gears and antilock brake systems*

The reps helped choose the notebooks in a six-month process during which they re-evaluated the notebooks Cook had selected and eventually picked his same choice. Cook said that while this process saved money because Compaq cut prices in the interim, it also cost Eaton six months of increased productivity.

While the re-evaluation seemed redundant, Cook said he did not mind.

"They were the ones who had to be comfortable carrying this into customers' offices," Cook said.

The dozen members of the transmission sales force also opted for expansion stations, which keep them connected to TCONA's 320-node local-area network for electronic mail, printer access and centralized file storage and sharing.

TCONA has also created an on-line database that takes an 8-ft long shelf of three-ring binders filled with historical data, and the reps can access this information through the network.

TCONA makes its heaviest use of portables in its testing group. The division's research engineers have two dozen portables — 12 Intel Corp. 80286-based notebooks from Toshiba America Information Systems, Inc., 10 Compaq SLTs and two Toshiba T4400s — dedicated to data acquisition and analysis.

Eaton applies the notebooks to different purposes. "Processor speed means nothing to data analysis people," Cook said, so they use the 286- and 386SX-based notebooks for their tests, which largely study how a truck's gears react to changes in temperature and vibration.

The T4400s, based on the 486SX, are used during actual road tests to determine how trucks' transmissions, brakes and axles work while they are on the road.

"When they're actually doing on-the-road testing of shifting gears and antilock brake systems, that requires a higher level processor because the data has to come in that much faster," Cook said.

ON SITE

Eaton Corp.
Galesburg, Mich.

- **Goal:** Improve sales support and real-time testing.
- **Technology:** Notebooks, palmtop computers and specialized applications.
- **Results:** On-the-spot answers for customers; ability to analyze product lines on the road.

FINANCIAL OBJECTS WANTED

Swiss Bank Corporation — one of the world's leading banks — wishes to add to its library of financial objects written in CP++ or Objective C.

Please phone Dick Cassell in the Information Systems Division on 0 11 44 71 711 3064, or FAX brief details of your product to 0 11 44 71 329 8700.

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IBM to set identities for PC lines

CONTINUED FROM PAGE 35

on-site service, while buying from the dealer nets service from the dealer. The products carry a one-year warranty from either source and a 30-day money-back guarantee.

The PS/2 line sells through dealers, value-added resellers and IBM's direct sales force. Distributors such as Merisel America, Inc. also push the PS/2. These premium PCs carry a three-year warranty and same-day, four-hour on-site service, as well as support from IBM's regional education centers.

Even IBM expects to see customers from one category buy PCs targeted at others, which should do particular damage to the flagship PS/2 line as corporate buyers shift to less expensive IBM alternatives. IBM officials act nonchalant toward the prospects of slumping PS/2 sales, saying they do not mind as long as a PS/2-type customer buys something from IBM. In fact, IBM officials have said they expect to see PS/2s make up no more than 30% of PC sales in the next year.

There are some substantive technological differences among the IBM lines.

The PS/1s come bundled with a variety of software, including Microsoft Corp.'s Windows on the low end and OS/2 on the high end, while the ValuePoint series includes OS/2 on its high-end models. PS/2s come with OS/2.

> FOR THOSE SHOPS that have standardized on Micro Channel Architecture, the ValuePoint represents a dilemma.

On the hardware side, the PS/1 and ValuePoint are largely the same, but the PS/2 features Extended Graphics Array-2, a Small Computer Systems Interface controller for faster hard drive performance and a 2.88M-byte disk drive. It was designed to be International Standards Organization-compliant.

What may bring companies to IBM is its pricing, particularly on the ValuePoint line.

"We're looking at the ValuePoint for our agents. We want a competitive desktop machine with both the performance and the price, and those seem to qualify," said Richard E. Nelson Jr., vice president of agency systems at New York Life Insurance Co. Nelson said the PS/2s simply cost too much for his agents to seriously consider them.

Still, for those shops that have standardized on Micro Channel Architecture, the ValuePoint represents a dilemma. The ValuePoint appeals to those buyers because of its pricing, but it rankles the information systems schema because it uses the IBM PC AT bus.

"We've said we're going to be a Micro Channel company and an OS/2 shop, so this ValuePoint does pose us some different problems," said W. B. Lovan, assistant buyer of indirect materials at Caterpillar, Inc. in Peoria, Ill. Lovan said he expects Caterpillar to purchase ValuePoint systems, "probably in those areas ... where we do not need the high-powered functionality that you may have in a PS/2. If I can get the value of IBM behind a quality low-cost PC, I'll lean that way."

PC Expo product report

BY MICHAEL FITZGERALD
CW STAFF

CHICAGO — The recent PC Expo Chicago show attracted almost 30,000 attendees and spawned numerous introductions of portable computers, desktop machines and software with multimedia and OS/2 flavors.

New products that were on display at the show included the following:

• **Beaver Computer Corp.** (BCC)'s 6.6-pound Avanti Communications Corp. 486 notebooks. These continue BCC's elegant designs and feature a new sloped keyboard.

The 486 uses Cyrix Corp.'s 486SLC chip and offers a 200M-byte hard drive. A different version uses a built-in AT&T digital-signal processor and V.32 bis modem. BCC expects street prices to be less than $3,295.

• **SAS Institute, Inc.** showed five new pieces of its SAS System for Information Delivery, which will come out when SAS releases Windows and OS/2 versions of its SAS System in early 1993. These components include a spreadsheet, an executive information system, a natural language interface and two new data analysis modules.

• **SPSS, Inc.** announced SPSS/PC +5.0, a $295 upgrade package.

• **NEC Technologies, Inc.** announced a new laser printer, the 10-page/min. Silentwriter Model 97, which costs $2,149.

• **IBM** showed an OS/2 version of its Screen Reader, which vocalizes screen information. Previously, this product for the visually impaired had worked only under DOS.

• **Quill Corp.**, a large distributor based in Lincolnshire, Ill., came out with its second round of private-labeled PCs, the Q-Tech line. Starting price for a 486SX-based PC is $2,499. It includes an 80M-byte hard drive, a noninterlaced Super VGA monitor, and it is bundled with Windows 3.1 and Borland International, Inc.'s Quattro Pro for Windows.

• **Falcon Systems, Inc.**, based in Prospect Heights, Ill., released two new computers. One is a $2,295 Multimedia System, based on a 20-MHz 486SX, and the other is a 50-MHz 486DX-based server with 8M bytes of random-access memory and a 200M-byte hard drive for $2,895, the company said.

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NEW PRODUCTS

Software application packages

Approach Software Corp. has started shipping Approach 2.0 for Windows, an upgrade to the company's Microsoft Corp. Windows-based database.

More than 50 new features have been added to this release, including the capability for a seamless mail merge from within Approach and the ability to locate and eliminate duplicate entries, as well as automatically generate pull-down value lists from the same or other databases.

Version 2.0 also provides PowerKeys that deliver 100% compatibility to SQL Server, DB2 and FoxPro, the company reported. A new PicturePlus feature enables users to store graphics, charts, sounds and entire documents.

The product costs $399.

Approach Software
311 Penobscot Drive
Redwood City, Calif. 94063
(415) 306-7890

Optimum Electronics, Inc. has introduced PC PassKey, a PC security product.

According to the company, PC PassKey was designed to eliminate both accidental and deliberate security breaches. The product consists of security software that monitors all system activity and permits only authorized use of all PC resources.

PC PassKey offers a variety of optional features including hard disk encryption, the ability to encrypt floppy disks, password protection and system monitoring. A virus protection feature offers protection from viruses attacking the system and stops them from spreading.

PC PassKey costs $355.

Optimum Electronics
425 Washington Ave.
North Haven, Conn. 06473
(203) 239-6098

Peripherals

Sysgen, Inc. has started shipping the Sysgen Super21 floptical drive.

Capable of storing up to 21M bytes on a single 3½-in. disk, the Super21 drive is read/write compatible with existing 720K-byte and 1.44M-byte disk, the company reported. The drive is accessible to all DOS and Microsoft Corp. Windows programs and has the ability to archive, back up and distribute data with one DOS-compatible drive. Super21 floptical drive is a complete external subsystem that also includes an adapter and installation software.

A twin-pack of the disks costs $39.95; a five-pack costs $99.95.

Sysgen
556 Gilbraltar Drive
Milpitas, Calif. 95035
(408) 263-4411

Systems

CompuAdd Express has introduced five new PCs.

According to the company, CompuAdd Express 425CX is configured with 2M bytes of random-access memory, a 40M-byte hard drive and one disk drive. Model 433DLC includes 4M bytes of RAM, a 200M-byte hard drive and a dual-disk drive. Model 450DX2 has the same configurations as 433DLC and is based on Intel Corp.'s speed-doubling technology.

Model 325SX has 2M bytes of RAM and a 40M-byte hard drive, and the Model 340DX includes 4M bytes of RAM and a 120M-byte hard drive.

Microsoft Corp.'s Windows 3.1, MS-DOS 5.0 and a mouse are included with each model.

Pricing begins at $995.

CompuAdd Express
12306 Technololgy Blvd.
Austin, Texas 78727
(512) 219-1800

Keydata International, Inc. has launched a line of notebook PCs.

Keynote 386SX-25 is an Intel Corp.-based computer that is configured with 2M bytes of expandable random-access memory. The product has a 640 by 480 high-resolution Video Graphics Array screen and includes ports for an external keyboard and monitor.

Another Intel-based product is the Color Keynote 386SL-25. The Color Keynote comes with 4M bytes of RAM and an 80M-byte drive, features a 64K cache and is capable of displaying up to 256 colors. The Keynote 486 has 4M bytes of RAM, an 80M-byte high-speed drive, a 10-in., supertwist backlit LCD display and a recessed trackball for fast cursor operation.

Prices start at $1,395.

Keydata International
111 Corporate Blvd.
S. Plainfield, N.J. 07080
(908) 755-0350

Franklin Electronic Publishers, Inc. has introduced the Digital Book System-1 (DBS-1), a handheld PC.

The DBS-1 has 16-bit architecture and is capable of storing up to 90M bytes of information in two removable interactive "Digital Books." The 4.6 oz. product uses Franklin's proprietary data compression system, where up to a 5-to-1 reduction ratio in physical memory requirements is allowed.

The DBS-1 has 32K random-access memory and is powered by four lithium button cells.

The product costs $199.

Franklin Electronic Publishers
122 Burrs Road
Mount Holly, N.J. 08060
(609) 261-4800

Operating systems

IGC has announced Version 2.2 of its VM/386 MultiUser PC-based operating system.

The product was designed for point-of-sale operations and database-intensive markets. It includes new features such as virtual COM ports, file-transfer capabilities, file system improvements and copy protection. According to the company, VM/386 MultiUser has architecture similar to a mainframe; its processing power is consolidated in one 386 or 486 host PC.

VM/386 MultiUser 2.2 costs $695 for the five-user version and $1,049 for the 32-user version.

IGC
Suite 108
1754 Technology Drive
San Jose, Calif. 95110
(408) 441-0366

This is a trend.

Easy to learn. Easy to expand. In fact, Macintosh is still the only computer engineered from the first chip to work that way. Which may also explain why Apple has sold more personal computers this year than any other company in the world. So if you're looking for a computer that's easy to use, there's really only one way to go. Macintosh. The power to be your best.

Apple

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USL's Destiny: Unix for the masses

Evaluators say this version of Unix — which can be customized to run on everything from laptops to desktops to supercomputers — could make the operating system palatable to commercial users

NEW PRODUCT IN-SITE

***Computerworld's* New Product In-Site is an evaluation based on interviews with major users at corporate and educational installations. The product under evaluation is being used in live application environments.**

UNIX SYSTEM LABORATORIES, INC.'S SYSTEM V RELEASE 4.2

- Unix V 4.2, also called Destiny, won raves for its new graphical user interface. Evaluators found the interface to be a big time-saver in everything from installation to adding devices and users to a Unix system.
- The Unix V 4.2 graphics library, Motif OpenLook Intrinsics Toolkit, is a boon when running packaged applications or developing new programs. However, some OpenLook applications may require recoding.
- Evaluators were unanimous that Unix V 4.2 should be used on 486 rather than 386 platforms. They said the 386 does not provide even minimally adequate performance.

For years, there have been rumors and hopes that Unix would make a once-and-for-all entrance into commercial computing. But detractors have bristled at the operating system's arcane commands and absence of standards. For example, *sed*, *awk* and *grep* have not been favorites in mainstream business computing.

The shipment of Unix System Laboratories, Inc.'s (USL) System V Release 4.2 — also known as Destiny — could bring an end to anti-Unix sentiment.

Unix V 4.2 is USL's catchall description for the latest version of the operating system. Unix V 4.2 can, theoretically, be customized to run on platforms as diverse as laptops and supercomputers.

USL does not sell its "generic" Unix V 4.2 to end users. Instead, it licenses the source code of the operating system to a variety of hardware manufacturers for implementation on their own computers. The exception — and the subject of this evaluation — is the version of Unix V 4.2 created to run on Intel Corp.'s 80386 and I486 PCs.

USL will not sell the Intel version of Unix V 4.2 but will license the product to vendors such as Univel, Inc., the joint partnership of USL and Novell, Inc., and Consensys Corp., which sells a version supporting Transmission Control Protocol/Internet Protocol networking for Microsoft Corp.'s Windows and Unix. However, USL put the generic Intel version through extensive preliminary testing, and that test version is the subject of this evaluation.

Unix V 4.2 is more than another Unix. It includes a graphical user interface (GUI) and a host of enhancements that insulate users and systems administrators from the internal workings of the operating system. Still, die-hard fans of VI and *grep* will still have access to the Unix command line.

For those needing to escape the frivolities of Unix commands, Unix V 4.2 could prove a blessing. The technical product evaluators participating in this survey were "shocked" at the changes wrought on the Unix interface by Unix V 4.2. Experienced Unix administrators and users, the evaluators found Unix V 4.2's graphical interface to be the first of many enhancements that will unleash them from tedious technical chores and free them to tackle business computing issues. Unix, they said, is no longer the intimidating and time-consuming "challenge" that it historically has been.

All of the evaluators participating in this survey were either conducting or finalizing evaluations of USL's Unix V 4.2. All had been beta-test sites for the operating system — two for more than six months. Final versions of Unix V 4.2 (Release P14) had been available to the evaluators since early September.

In a nutshell, the evaluators had few complaints with Unix V 4.2. One evaluator — the federal agency — had difficulty porting OpenLook applications originally written for a Sun Microsystems, Inc. SPARC machine to the Unix V 4.2 environment. The problem, apparently, was that low-level graphics functions used on the SPARC system were not available in the Unix V 4.2 Motif OpenLook Intrinsics Toolkit, which USL said will automatically support almost any OpenLook or Motif application. The federal agency evaluator uncovered the meaning of "almost any" application and was rewriting sections of the offending programs. "We like Motif better anyway," he said.

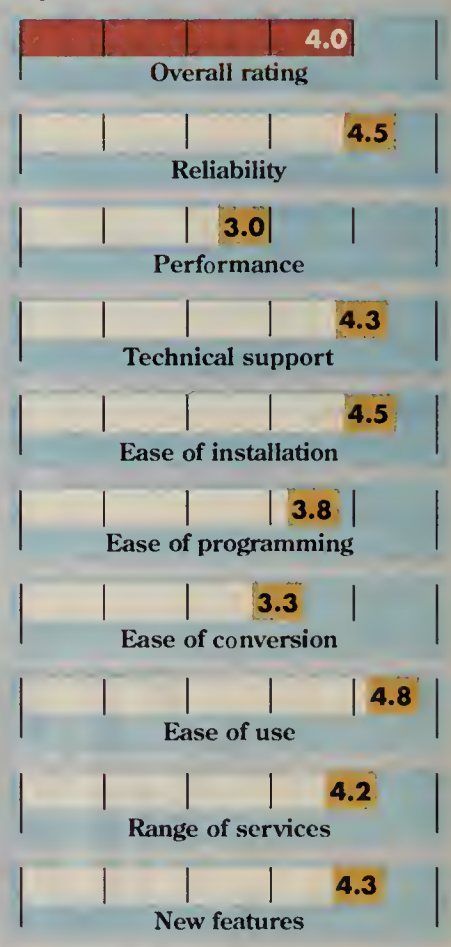
The research facility and the federal agency both had substantial installations of Unix workstations with a variety of Unix implementations already in in place. The total installed base exceeded 25,000 users at both sites. The insurance company had about 300 to 400 Unix users on a variety of mainframe and midrange systems. The systems integrator included a diverse mix of hardware — from Unisys, Inc. mainframes to clone PCs made in Taiwan — in its customer accounts.

RELIABILITY

The evaluators found Unix V 4.2 to be remarkably reliable, with no significant downtime except in the earliest prerelease versions. They said Unix V 4.2 was, in fact, more reliable than IBM's OS/2 2.0.

Unix System Laboratories' System V Release 4.2

Ratings are based on user expectations on a scale of 1 to 5, where 1 is below expectations and 5 is above expectations. Ratings are presented in order of importance to users.



Unix V 4.2 includes a "journaling" file system that is said to protect applications from sudden power failures and systems glitches. Users commented that in other versions of Unix, the same feature often caused system start-up times of more than 12 minutes. Under Unix V 4.2, according to the systems integrator, start-up times had generally been reduced to less than one minute.

Systems integrator: "No problems. The file system is a lot more robust in a power failure and recovers very well."

COMPATIBILITY

Given that Unix V 4.2 is an industry-supported offshoot of AT&T's Unix Software Operation, the original creator of Unix, it would be difficult to imagine a USL Unix that is not compatible with industry standards. An "incompatible" USL Unix would, in essence, have to be incompatible with itself, since USL Unix is "the one and only Unix." However, it is conceivable that USL Unix could evolve in such a manner as to outmode existing applications. That was the thrust of the compatibility question. It becomes more important as graphical applications proliferate using a

SITE PROFILES

Installation descriptions for users who evaluated Unix System Laboratories' Unix V 4.2

	Federal agency	Research facility	Insurance company	Systems integrator
Hardware platform	AT&T 6386 25 MHz	ALR 80386 50 MHz	IBM & Compaq 386, 25 MHz	Acer 486SX 33 MHz
Using previous version	No	Was beta-test site	Yes	Yes
Application types	Custom-built & OpenLook 4.0	Creating development tools	Interoperability testing	Tuxedo, Lotus, X Windows
Reason for using Unix V 4.2	Platform for cooperative network	Best Intel-based Unix	Reduce Unix learning curve	Cheap X-Station Standard hardware

Methodology: Product ratings are based on evaluations from four user sites (profiled above). These are early users of USL's Unix V 4.2. The users are members of *Computerworld's* Product Evaluation Council.

variety of graphic protocols and standards.

In addition to its compatibility with previous versions of Unix (USL calls this "the Unix V 4 family," which includes Unix V 4 and Unix V 4.1), Unix V 4.2 includes a new graphical tool kit based on the X Window System standard.

The Motif/OpenLook Intrinsics Toolkit allows both OpenLook- and Motif-based applications to run, unaltered, in Unix V 4.2. However, some evaluators found that applications written for some versions of OpenLook required substantial revision in the graphics area.

In the experience of the evaluators, all character-mode applications, device drivers and packaged "off the shelf" applications ran unaltered on Unix V 4.2.

Federal agency: "Some higher level calls from OpenLook were grossly modified. Code still won't compile or run because they've changed the libraries."

Insurance company: "The interoperability tests that we run on all systems in the lab ran on Unix V 4.2 with no problems."

Research facility: "You're not going to take Unix V 3 application libraries, especially those that use memory management, and expect to compile something that's going to work."

Systems integrator: "It's good that you can change the configuration to go from OpenLook to Motif. We've tried packaged software and remote systems running X Windows. We haven't had any problems with the software we've tried."

PERFORMANCE

The evaluators said Unix V 4.2 ran precisely as expected on 486-based systems. They were generally not pleased with performance on 386 platforms of any kind.

Federal agency: "A 386, 25-MHz machine just doesn't cut it. I can fall asleep waiting for something to happen."

Systems integrator: "The X Windows environment requires heavy processing. You need a 486 machine."

TECHNICAL SUPPORT

Unix installations traditionally have relied on internal technical expertise to resolve difficult problems. Technical support generally has referred to the ability of Unix administrators, programmers and support staff to pore through and understand volumes of Unix technical manuals. And because USL sells Unix V 4.2 only to hardware manufacturers and other resellers, it does not provide technical support beyond that required to port the operating system to different hardware platforms.

As experienced Unix users and as preliminary test sites, the evaluators did not have tremendous need for technical support. However, the evaluators generally gave Unix V 4.2 high marks for documentation and on-line Help systems.

A new "drag and drop" icon system, for example, made printer configuration little more than a matter of moving the icon to the appropriate location on the desktop.

Federal agency: "On administrative functions like adding users, they've done a super job. Doing that in the past has been cryptic, but you don't have to know much at all to meet your goal now."

Insurance company: "It allows us to get back to answering business needs without having to play with operating systems."

Systems integrator: "The menu-driven installation guide is helpful. The event-driven hypertext help engine is excellent."

INSTALLATION

Unix installations usually require a complex mix of disk swapping, tape drive restorations, device configurations and a gamut of administrative programs. The difficulty of this process is multiplied by the requirement that system hardware be supported by custom device drivers; that storage devices be partitioned in a complex fashion supporting the Unix file system; and that users be added to a system profile to accommodate shared files and multitasking. Standard Unix utilities are not highly regarded for their assistance in such matters.

With its graphical approach, Unix V 4.2 eliminated many of these complexities, according to evaluators.

Federal agency: "You can get up and flying, and as you experience problems or learn more, you can tune parameters later. Before, you had to know at the front end or you couldn't get the system up."

Insurance company: "You don't have to be a Unix person, and you can install it in two hours."

Systems integrator: "All the graphical administration features are great. Absolutely amazing. People are in disbelief that this is a Unix system."

PROGRAMMING

Because Unix V 4.2 is in all respects "standard" Unix, writing applications for it is no different than for previous versions of the operating system. Evaluators said they anticipated no changes in programming practices or methods to work with Unix V 4.2. An enhanced, graphical debugger was noted by all the evaluators.

Research facility: "Their source code debugger seems to be more robust and easier to use."

Systems integrator: "You can wrap the debugger right around a process."

SOFTWARE CONVERSIONS

All evaluators reported that standard Unix programs written for the "generic" Unix V 4.2 recompiled and ran without any difficulty. The same was true for graphical applications written for X Windows and Motif. Some OpenLook applications, as noted above, required minor revision. Packaged application software ran without any difficulty, the systems integrator reported.

Federal agency: "Drivers which I first developed in 4.0 ported right over.

Unix V Release 4.2

- Hardware platforms: Intel 386 and 486, SPARC and MIPS.
- Future platforms: RS/6000, DEC Alpha and HP.
- Support for common DOS and Windows emulation utilities.
- Graphical "point-and-click" environment.
- Multiple GUIs, including OSF's Motif and Sun's OpenLook.
- Adobe Type Manager embedded in the operating system.
- Optimized X Window System server.
- Smart interruptible installation routines.
- Graphical administration features.
- Dynamic kernel modules allowing on-line device installation.
- Meets Unix International desktop standards.

We used a lot of OpenLook library calls [in older applications] that just aren't supported."

Systems integrator: "Porting is not an issue."

EASE OF USE

The best description for evaluators' reactions to Unix V 4.2 is "astonishment." All commented repeatedly on the improvements in ease of use made by the new graphical user interface.

Federal agency: "Unix has always been the way we wanted to go, but up until USL came out with Unix V 4.2, it was very alien for people to want to use and very obtuse."

Insurance company: "Anybody will be able to use it in a couple hours if they come from a graphical, windowing paradigm."

Research facility: "Users aren't going to be able to destroy any of the system files. For me, that's a blessing."

Systems integrator: "People who have used the Windows environment or OS/2 or a Macintosh soon pick up the [Unix V 4.2] file manager and [other utilities]. Compared to Unix 3.2, it's light years ahead."

RANGE OF SERVICES

Unix V 4.2 includes all standard Unix utilities. In that sense, it did not exceed the expectations of the evaluators. However, they considered easier access to these utilities to be the biggest improvement of all.

Insurance company: "There isn't enough time to test all of the utilities, at least in our world. But [of those tested] they've simplified them to such a degree as to make them trivial."

Research facility: "They haven't enhanced the services that much, but they've stunningly increased the ability of less experienced people to use them."

Systems integrator: "The only thing missing is an X.25 product. That's something we'd like to get ahold of."

Reported by Michael L. Sullivan-Trainor and Garry Ray, CW staff.

USL RESPONDS

This is USL's response to issues raised in this evaluation.

- **OpenLook portability:** OpenLook is completely upward-compatible with Unix V 4.2's Motif OpenLook Intrinsics Toolkit. Moving from OpenLook to Unix V 4.2 involves a simple recompile. Any difficulties might have stemmed from moving an application from a Sun SPARC platform to an Intel platform. It is possible that some subtle differences could occur in such a platform move. The difficulties could not have come from a move from OpenLook to the Motif OpenLook Intrinsics Toolkit.
- **Packaged software:** We are working directly with 50 top independent software vendors and their applications. We are also working together with top systems vendors and Univel [the joint partnership of USL and Novell, Inc.] to reach independent software vendors. This is already proving to be effective, as we are able to leverage the strengths and longstanding relationships of other companies.
- **Availability:** USL does not sell directly to end users. We sell to systems vendors and to Univel. We have been the source of Unix for over a decade. Our strategy is to provide the basis for open systems. Therefore, we make the operating system widely available to a myriad of vendors rather than trying to dominate distribution and capture the end user.
- **Unix in business:** Momentum is building for Unix in general-purpose office computing. The rightsizing movement naturally lends itself to Unix. People are moving away from proprietary environments.
- **Minimum configuration:** Our recommended minimum configuration is just that: a minimum for the foundation set.

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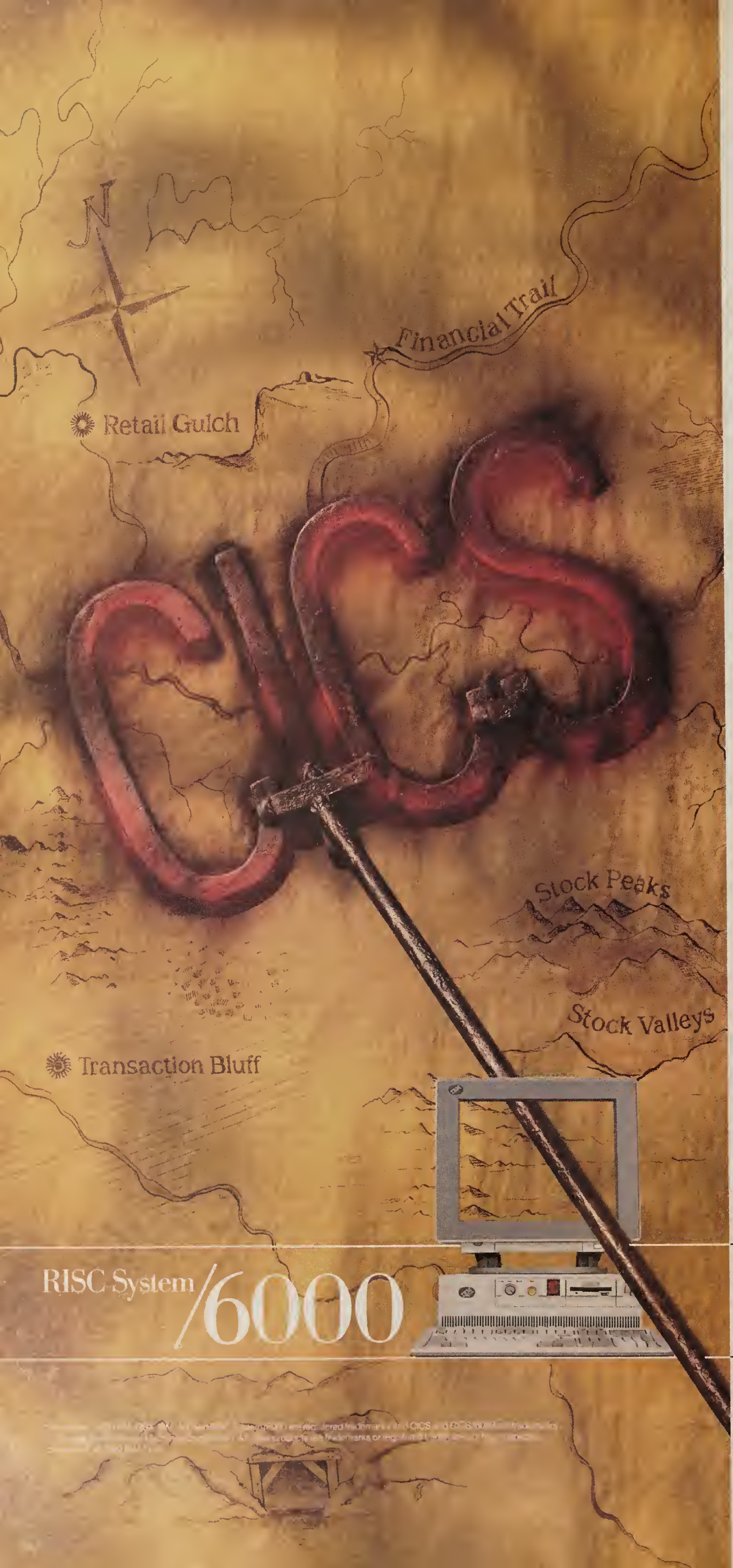

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COMMENTARY

David Coursey

Not really a Notes killer

Forget you heard the rumor that Microsoft's new Windows for Workgroups is Bill Gates' secret weapon for killing Lotus' Notes. That's not true. However, Lotus does need to stop positioning Notes as "all things groupware" and better communicate what Notes really does.

You can thank the PC trade press for latching onto the notion that Windows for Workgroups — which about half the time people manage to call Word for Windows by mistake — is a "Notes killer." Examining how this happened helps to address why Notes needs to be repositioned, even re-architected, if it's to remain a success.

Here's the story:

Since Notes' introduction, Lotus has gone to great pains to portray Notes as a great conferencing tool. If you're familiar with bulletin boards and CompuServe, the idea of leaving a message and having others leave responses, creating a message "thread," is nothing new to you. But because lots of supposedly savvy IS people — and especially their bosses — had never seen a CompuServe forum, people went gaga over Notes conferencing. So to many people, Notes and LAN-based conferencing are one

Continued on page 46

Lotus will not provide single mail engine

BY LYNDA RADOSEVICH
CW STAFF

CAMBRIDGE, Mass. — Lotus Development Corp. has pulled back from plans to integrate its electronic-mail and groupware software and no longer intends to provide a single mail engine.

The move is an apparent shift from a three-phase strategy Lotus outlined last spring for bringing together its CC:Mail E-mail software and Notes groupware. The plans included merging the products' back-end mail transport and message storage abilities and eventually offering a single mail product with elective Notes features.

CC:Mail, with 2 million users, is one of the leading E-mail packages; Notes has 200,000 users, according to Lotus.

"You can put the common back-end concept aside," said Justin Fielding, a Notes product manager. "We got strong feedback that users love both products, and they don't want us to hamper the strength of either architecture."

Instead, the company will take a modified approach.

"We are stressing that the two products work as synergistically as possible while preserving two separate products," Fielding said.

For example, a new Lotus Mail Exchange Facility is now shipping that preserves text formatting and graphics attachments in messages sent between the two products. The previous gateway seamlessly exchanges text but does not necessarily preserve fonts, colors and formatting.

The exchange facility also provides directory synchronization so that CC:Mail and Notes directories automatically update each other when users are added or deleted from one, for example.

More features

With Notes 3.0, which is expected early next year, there will be additional enhancements, including shared administration tools and an option to choose CC:Mail as the mail package within Notes, which comes with its own message system.

One reason for the change in strategy was that users were not clamoring for Notes/CC:Mail integration.

"I know there were small nuisances in transferring messages, such as inconsistencies in formatting, but nothing that was a major issue," said Alan Bidgoli, a Notes technical support person at the National Academy of Sciences in Washington, D.C. The academy runs both Notes and CC:Mail using a gateway to communicate between the two products. "It already seems seamless to the users," he said.

Another reason is that a merger did not make marketing sense for Lotus, said David Marshak, vice president and senior consultant at the Patricia Seybold Group in Boston. He pointed out that if CC:Mail, which sells for about $100, offered many of the same capabilities as Notes, which sells for about $500 per node, Lotus would have a hard time selling Notes.

Marketing did not enter the discussion to change plans, said Cynthia Lavoie, a Notes product marketing manager. "It was a technical decision," she said.

Lotus discovered that the technologies behind E-mail and workgroup applications are very different and did not want to compromise each product's architecture from doing what it does best, she said.

Even with tighter integration, the packaging of Notes and CC:Mail together may not be in the cards, according to Marshak. The introduction last month of BeyondMail for Notes from Beyond, Inc. — a Microsoft Corp. Windows-based messaging system that gives non-Notes users limited participation in Notes conversations — shows that other packages besides CC:Mail "can integrate with Notes as well or better than CC:Mail," Marshak said.

IS releases promoter from hardware shackles

BY MARYFRAN JOHNSON
CW STAFF

NORWALK, Conn. — The next time some nice lady hands you a coupon in the supermarket, think of Actmedia, Inc. Chances are, she works for the company.

As the industry leader of the in-store advertising and promotional business, Actmedia virtually invented the concept, 20 years ago, of providing marketing services on the premises of supermarkets, chain drugstores and mass merchandisers.

Today, the company is reinventing its information systems as it jettisons 6-year-old proprietary gear from Wang Laboratories, Inc. for a Unix-based client/server network based on Oracle Corp.'s relational database management system.

"One thing that really pleases me these days is I'm no longer a prisoner of my hardware vendor," said James Klump, senior vice president of information ser-

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ON SITE

Actmedia
Norwalk, Conn.

- **Challenge:** To enable this in-store marketing business to respond more nimbly to market changes by replacing outdated Wang minicomputers and applications with a $4.5 million open client/server architecture.
- **Technology:** Oracle relational database management system and 4GL development tools and a Novell network of about 200 PCs anchored by a Unix-based server (choice still pending).
- **Timing:** Past year spent developing database model and design; installing first production server in January; final rollout expected by end of 1993.

DEC brings NAS to SunOS

BY MELINDA-CAROL BALLOU
CW STAFF

Digital Equipment Corp. recently announced a Network Application Support (NAS) package for Sun Microsystems, Inc. platforms that will allow Sun users to integrate applications across platforms.

One of the understated aspects of the introduction was that with this NAS 250 software, sites will be able to use the Sun workstations as servers to create an integrated environment without using DEC hardware.

The product's release exemplifies DEC's commitment to software and NAS, regardless of the hardware platform on which it is running, said Dennis Phelan, NAS marketing director at DEC.

"I've always liked the product, but my hang-up was that you had to have DEC equipment somewhere in order to run it, and now they've divorced themselves from that," said Rikki Kirzner, principal analyst at Dataquest, Inc., a market research firm based in San Jose, Calif. "If they can figure out how to get [NAS] to take off, it could solve the many interoperability headaches that vendors and users are facing."

Included in NAS 250 is the Open Software Foundation's Motif user interface and DEC's Application Control Architecture (ACA) Services and Compound Document Architecture (CDA) Services.

ACA Services is a set of object-oriented facilities for launching and linking applications across a networked, heterogeneous environment. Users could link a spreadsheet on a PC with a mathematics application running on a Sun machine.

Big player

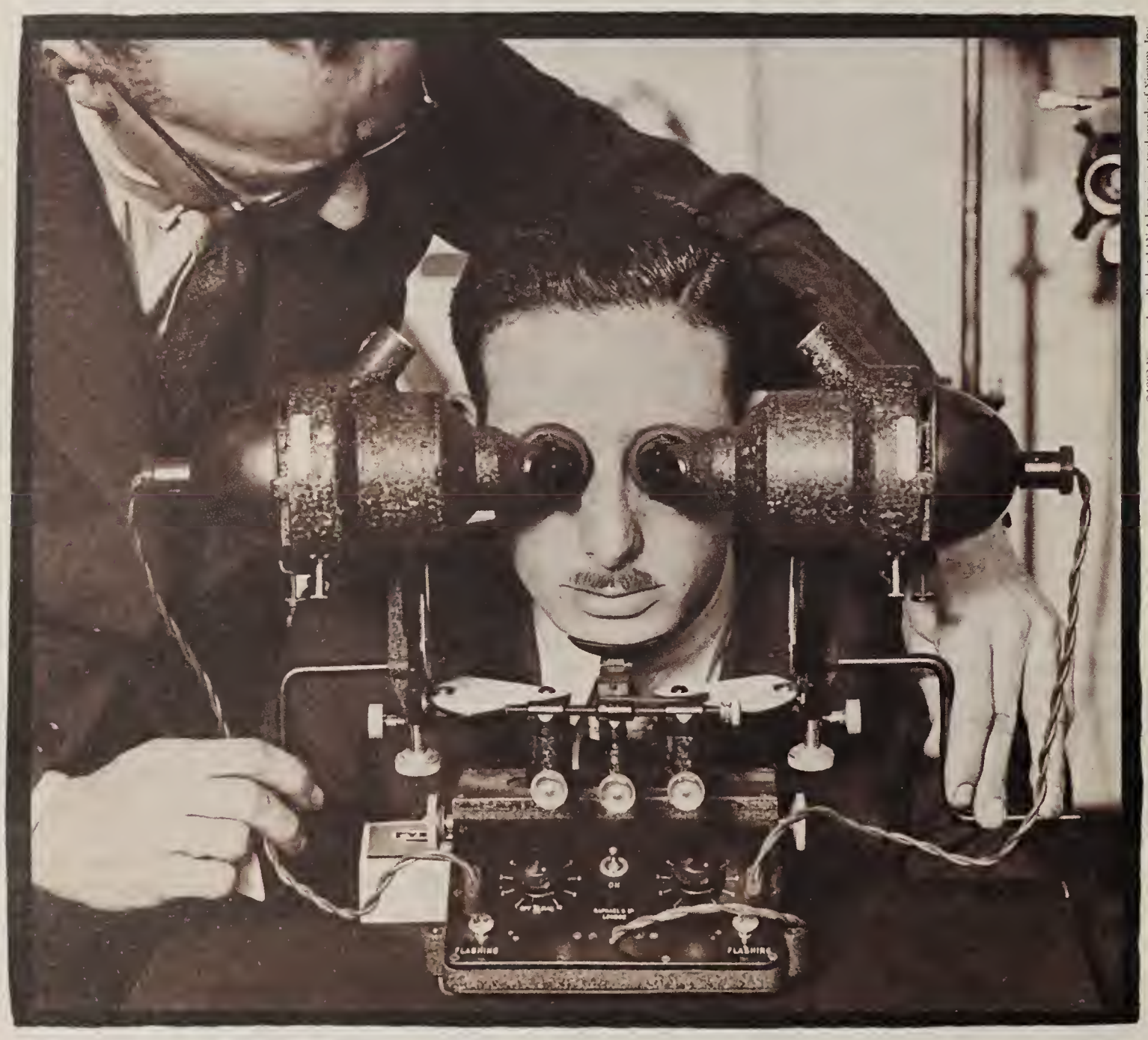
ACA Services makes up a substantial portion of the dynamic application programming interface standard for the Object Management Group's Common Object Request Broker Architecture, facilitating the process for users building object-oriented applications.

CDA Services are a set of runtime services for creating, storing, transporting and interchanging compound documents in mixed environments.

DEC also announced Version 2.0 of the NAS 200 and NAS 300 for VMS and Ultrix servers and of NAS 250 and NAS 400 for Open VMS. New with Version 2.0 is support for ACA Services and expanded support for Microsoft Corp. Windows and Apple Computer, Inc. Macintosh systems, DEC officials said.

"If you look at NAS and what it tries to be — a solution for all the heterogeneous problems in the world — what this announcement does is position NAS as a foundation product for DEC," Kirzner said.

NAS 250 for the SunOS costs $265.



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Novell offers TCP/IP gear

BY MICHELE DOSTERT
CW STAFF

SAN FRANCISCO — Demonstrating the strength of its commitment to Unix, Novell, Inc. has announced new Transmission Control Protocol/Internet Protocol (TCP/IP) networking products to integrate PC local-area network users into the Unix networking world and manage them once they are there.

At Interop '92, Novell announced Version 4.1 of its LAN WorkPlace for DOS product, which allows DOS and Microsoft Corp. Windows users to connect to Unix or Novell NetWare servers via the TCP/IP suite. LAN WorkPlace for DOS is installed directly on the desktop and may be used with other LAN operating systems as well as NetWare.

Reflecting the growing strength of Unix-based Simple Network Management Protocol (SNMP) in the PC world, LAN WorkPlace 4.1 has added an SNMP agent loaded at the workstation. Any PC running LAN WorkPlace 4.1 can be managed by any SNMP-based network management system.

Remote possibilities

The new version also adds support for remote computing, using Unix standard protocols, and improved Windows and Unix File Transfer Protocol support. LAN WorkPlace 4.1 is slated to ship in December. The product is priced at $12,995 for 100 users.

For large NetWare installations where centralized administration is an issue, Novell also announced a new server-based connectivity product, LAN WorkGroup, that provides NetWare users with concurrent access to both Unix and NetWare file and print services.

LAN WorkGroup contains the same applications and utilities found in the client-based LAN WorkPlace. At a price of $12,995 for 150 users, LAN WorkGroup is also considerably cheaper on a per-user basis than LAN WorkPlace.

"LAN WorkGroup's centralized installation and administration allow us to set up networks much more quickly and efficiently," said beta-test site user David Willis, manager of network systems at the American Red Cross in Washington, D.C. "It lets us expand access to our remote networks without paying a heavy technical support penalty."

Microsoft ships revised LAN Manager for Unix

Despite its long list of OEMs, industry observers do not predict success in LAN marketplace

BY MICHELE DOSTERT
CW STAFF

Microsoft Corp. recently began shipping Version 2.1A of its LAN Manager for Unix to OEMs, but users might not see much impact because OEMs may be too distracted by their Novell, Inc. NetWare sales to take much notice, analysts said.

Microsoft's OEM version includes all the functionality found in LAN Manager 2.1, plus many of the enhancements Microsoft will ship with LAN Manager 2.2, such as a new Windows Network Administration program, a terminate-and-stay-resident Print Station and support for Microsoft's Windows 3.1 and IBM's OS/2 2.0 clients.

Microsoft has a long list of OEMs currently licensing its LAN Manager for Unix product, but most industry watchers said they do not expect LAN Manager for Unix 2.1A to have great success in the local-area network marketplace.

Hard sell

"If you look at Microsoft's list of OEMs, you'll see that most are also selling and supporting Novell, Inc.'s NetWare or NetWare for Unix products," said Lee Doyle, an analyst at International Data Corp. in Framingham, Mass. "None of those OEMs are really pushing it as their strategic platform of choice. And while LAN Manager for Unix makes a nice integration tool for mixed LAN Manager/Unix environments, there just aren't that many of those environments out there."

"Our goal has been to eventually synchronize the Unix LAN Manager releases with the OS/2-based LAN Manager releases," said Robert Kruger, Microsoft's group manager for Corporate Network Systems. "We will shortly be releasing add-on products to LAN Manager for Unix, including Macintosh services and remote access services."

Meanwhile, NCR Corp., which co-developed the Unix product with Microsoft, is already shipping new versions of it's StarGroup LAN Manager for Unix 2.1A to customers.

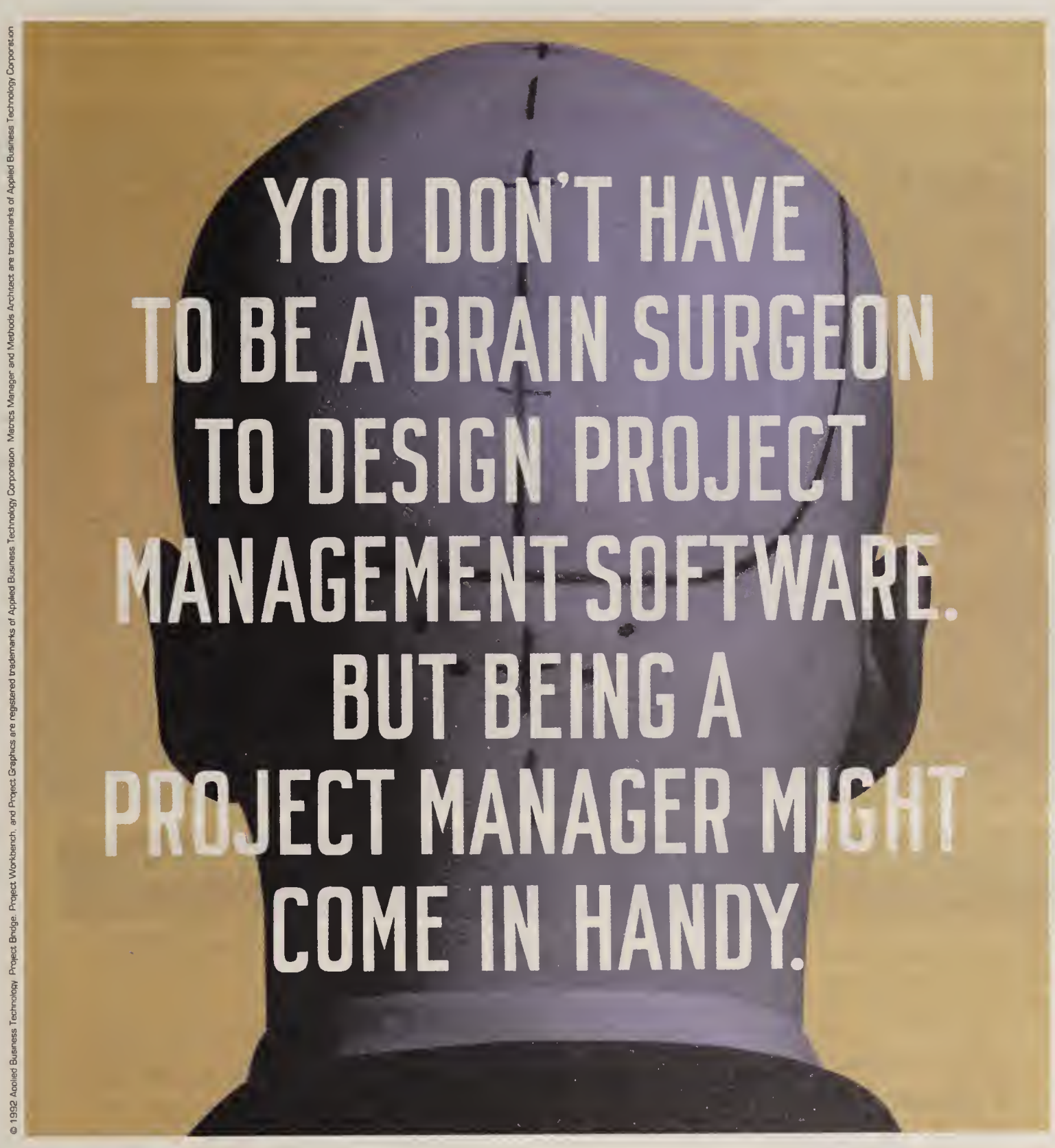
NCR has enhanced the basic LAN Manager for Unix 2.1A with an Apple Computer, Inc. Macintosh server, multiprocessing support for the NCR System 3000 servers and a unique, server-based interoperability feature for NetWare, the market-leading operating system sold by Novell.

When NCR's StarGroup Server for NetWare clients is installed on a StarGroup server, NetWare clients will be able to access file and print services on StarGroup servers while remaining in their familiar NetWare environment.

Beta-test users of StarGroup LAN Manager for Unix 2.1A said they were pleased.

Marianne Levandoski, network architect at AT&T's tax department in Morristown, N.J., has a mix of Unix, DOS and Windows systems. NCR's take on Unix 2.1A gives her a simple translator that brings the two environments together, she said.

Kevin Wallace, a network analyst at Eastern Kentucky University in Richmond, Ky., said he is especially pleased with StarGroup's new Macintosh server, which lets Macintosh users access files and printers on LAN Manager for Unix networks.



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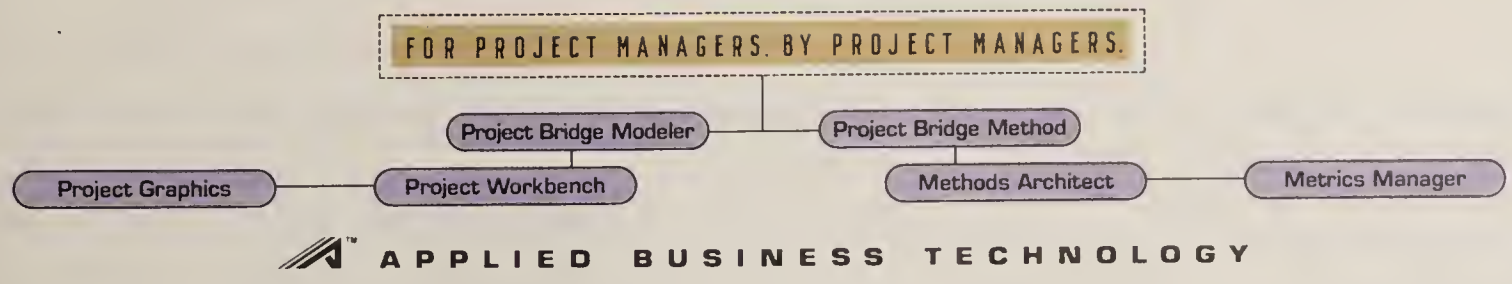

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Coursey

CONTINUED FROM PAGE 43

and the same.

Unfortunately, conferencing is not the best example of what Notes is about, although it is very easy to demonstrate and makes nice use of the replication engine, which copies the entire conference message base onto the hard drive of every user. So when Microsoft showed a conferencing application running atop Windows for Workgroups, some reporters latched onto it as a "Notes killer." To their credit, Microsoft executives didn't push the description, although they didn't argue much with it, either.

If all Notes was good for was conferencing, the "killer" designation might be true. Instead, Lotus has created a powerful object store (that means database in objectese) designed specifically for unstructured information. And this is why some very large companies are using Notes for maintaining client records, including every contact anyone at the company has ever had with the customer.

Notes is also a nice repository for multimedia and reference information, but its relational capabilities aren't really up to snuff.

Not alone

Those distinctions didn't really matter until Microsoft entered the fray. Until then, workgroup applications were essentially a one-horse town, and Notes was alone in the stable. Now, of course, Microsoft has announced plans to add workgroup underpinnings to its operating environments.

This is good for users but bad for Notes. That's because when Notes was built, designing workgroup software meant building your own messaging, user directories, development tools, security and other features right into the application. Lacking the necessary plumbing, Lotus had to build its own. That is just fine until the city inspector shows up on your doorstep and red-tags your house for nonstandard plumbing.

Red-tagging is exactly what Microsoft is doing to Lotus, and that explains why Windows for Workgroups will open the way for Microsoft and some opportunistic third parties to do some serious damage to Notes.

To avoid this, Lotus needs to position Notes as the tool of choice for specific types of workgroup applications and then admit to its limitations, especially as they relate to structured data.

More importantly, Lotus will be forced to break Notes into its component pieces, allowing the Notes database and replication engine to stand on their own. The free-form database and replication engine shouldn't require the existing Notes client software but should become fairly nondenominational server pieces available to everyone, even Microsoft applications.

Accepting this fate and learning to profit from it will pave the way for Lotus to build innovative workgroup applications instead of fighting the PC industry version of the Vietnam conflict.

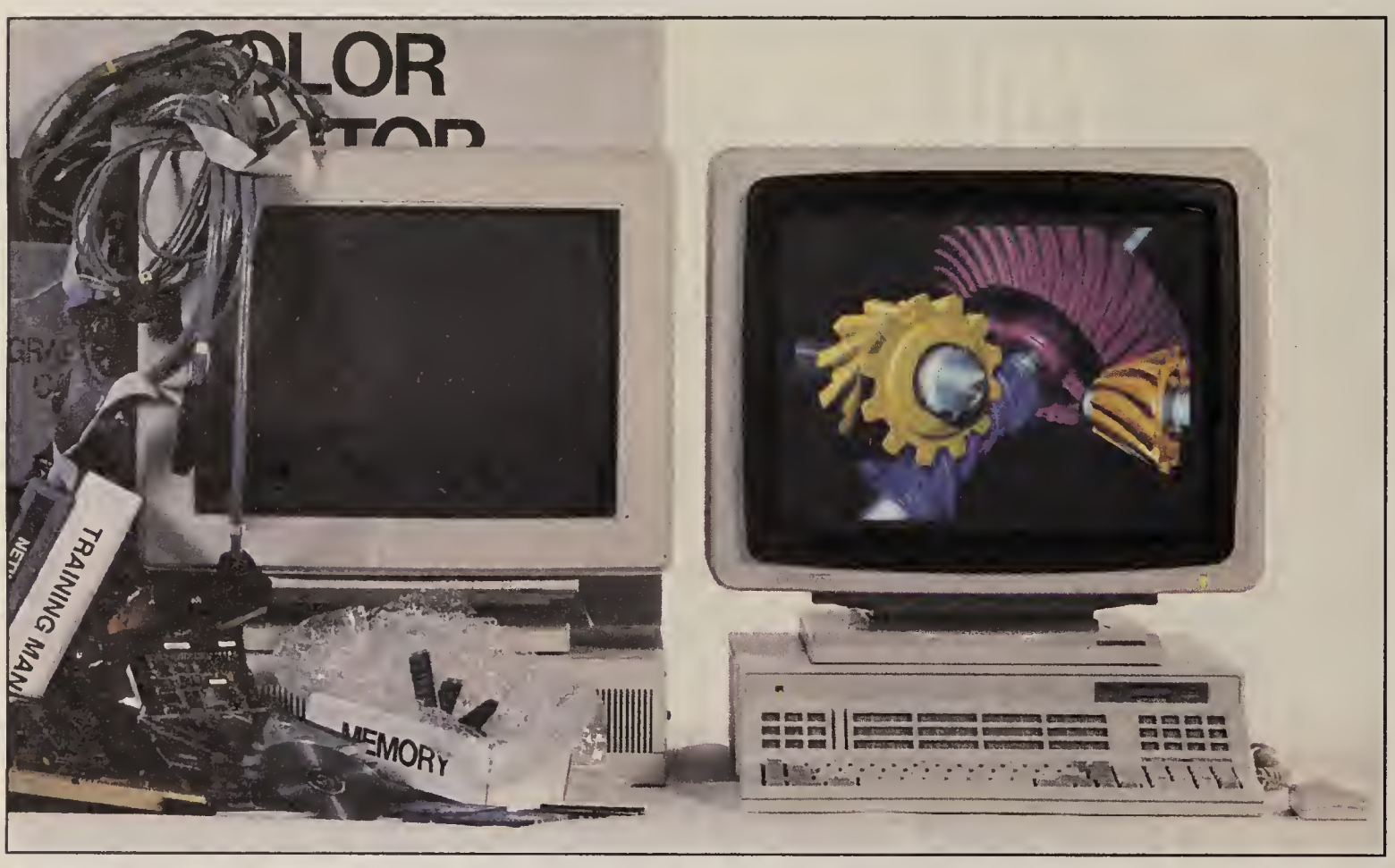
Just a start

The recent introduction of BeyondMail for Notes is just the beginning. BeyondMail offered its E-mail package as a replacement for the Notes/CC:Mail E-mail component with direct access to the Notes database. That is just the first company to try to use the Notes server without buying a truckload of Notes clients.

Lotus would be wise to embrace this trend, although it will force a new business model for making a profit from selling a stand-alone Notes server. This will be difficult, and the temptation will be to battle Microsoft head-to-head, perhaps in a higher stakes game of chicken than the VIM/MAPI war could provide.

It would be better for Lotus to adopt a cooperative attitude of adding value to Windows for Workgroups and concentrate on providing innovative applications rather than tying up resources defending a position that is being surrounded — even if it is a nice high spot today.

Coursey is editor of "P.C. Letter," a biweekly newsletter based in San Mateo, Calif.



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IN BRIEF

New RAID system debuts

■ **Micropolis Corp.** in Chatsworth, Calif., has introduced a redundant arrays of inexpensive disks (RAID) subsystem for PCs and servers that is said to provide the largest storage capacity available for machines running **Novell, Inc.**'s NetWare. Priced at $19,975 for a 4.2G-byte, three-module array, the Raidion Model 4200 line offers up to 65G bytes of RAID Level 5 fault-tolerant storage. Additional 2.1G-byte drives are priced at $6,658.

■ Fulfilling a promise to spread its ToolTalk software over multivendor platforms, **SunSoft, Inc.** said the interapplication communications software will be available shortly on platforms from **Hewlett-Packard Co., IBM, Digital Equipment Corp., Cray Research, Inc., Intergraph Corp.** and **Silicon Graphics, Inc.**

ToolTalk, which enables plug-and-play linking of applications, has been endorsed as an industry standard by more than 50 software vendors.

IS releases promoter

CONTINUED FROM PAGE 43

vices at Actmedia. "Of course, I suspect the transition I'm making is that now I'll be married to my software vendor."

Even so, the allure of open systems has been a powerful one for Actmedia, whose accelerated growth in the past five years has turned its $3 million customized Wang system into an albatross.

"I'll know we're all done with this conversion when I can push the Wang system out the fifth-story window," Klump said half jokingly. "Our applications systems are out of date, even though our code is only six years old."

Founded in 1971, Actmedia hit the $2 million revenue mark in 1982 and then blossomed to $200 million this year. It now employs more than 10,000 part-time coupon givers and product demonstrators in thousands of supermarkets.

> "IT'S NOT OFTEN you get funding and then give back $1 million. But when the technology is this new, you're learning as you go.... The most valuable lesson we've learned is to put your investment up front in the planning stages — the business model stage."
>
> JAMES KLUMP
> ACTMEDIA

The conversion project was launched one year ago with a "best guess" budget of $5.7 million. Six months later, Klump recalculated the cost and scaled it down to $4.5 million.

"It's not often you get funding and then give back $1 million of it," he said cheerfully. "But when the technology is this new, you're learning as you go. As we got smarter, we were able to reduce our costs."

His IS staff of 30 was also able to start with a "clean sheet of paper" in designing the new system. "We interviewed our users and developed a total model of the business," the IS executive said.

Actmedia found that at least 60% of the application functions on the old Wang system — many of them grafted onto the original database — were redundant and no longer necessary. Also, the nature of the business had dramatically changed in the past few years from mainly advertising to mostly promotional work.

Advertising has more to do with image in the consumer's mind (like connecting Bill Cosby with Jell-O Pudding) while promotional work has a more direct link between dollars spent and product sold. Coupons, for example, are promotions.

At this point, Actmedia's database modeling and detailed design are finished, and the first prototype application is ready to be installed on a still-to-be-chosen Unix server in January. After doing the Oracle development work on an IBM RISC System/6000, Klump said he is leaning toward an RS/6000 Model 970 as the database engine.

"The most valuable lesson we've learned is to put your investment up front in the planning stages — the business model stage," Klump said. "You can't just jump in and write code. You have to have a methodology."

Actmedia's methodology is based on consulting work done earlier this year with SQL Solutions, Inc., a subsidiary business of Sybase, Inc. The two parted amicably in August, however, when SQL Solutions decided to concentrate on Sybase clients rather than Oracle ones.

One major benefit Actmedia hopes to glean from the new client/server system is speedier, more accurate feedback for packaged-goods manufacturers about the promotions Actmedia manages for them.

"I think we're also going to see lower maintenance costs on our systems as we move down this road," he added.

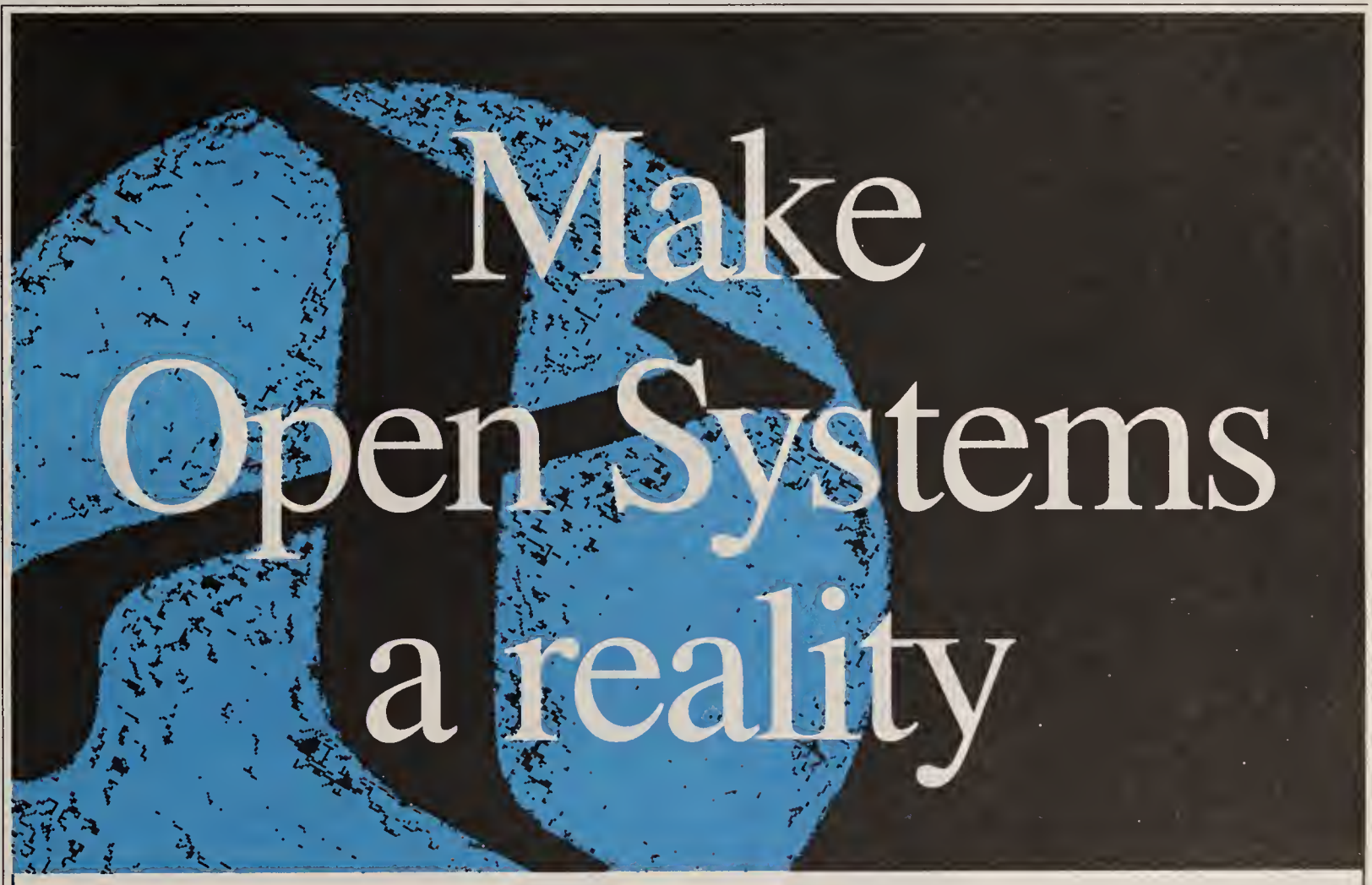
The company's database is its lifeblood, brimming with information on the top 30,000 supermarkets in America. Of the roughly 140,000 grocery stores in the country, those 30,000 produce 75% of the dollar volume, according to industry sources.

Instant coupons

One of Actmedia's newest and most lucrative products this year was the "Instant Coupon" machine, a small device with a flashing red light that attaches to supermarket shelves and dispenses coupons on the spot. Installed in some 7,000 supermarkets nationwide, the coupon dispensers proved so popular that they generated $20 million for Actmedia this year

"This turns out to be the most efficient way out there to deliver coupons," Klump said. Sunday newspaper inserts have a coupon redemption rate of only 2.3%, while the Instant Coupon machine rocketed that figure up to 20%. And the majority of that 20%, he added, came from people who had no intention of buying the product until they saw that red light twinkling away.

"We had to really hustle our IS function to build the systems we needed around this," Klump said. "On the new system, with a much more flexible platform, we would be able to deliver new applications for this significantly faster."



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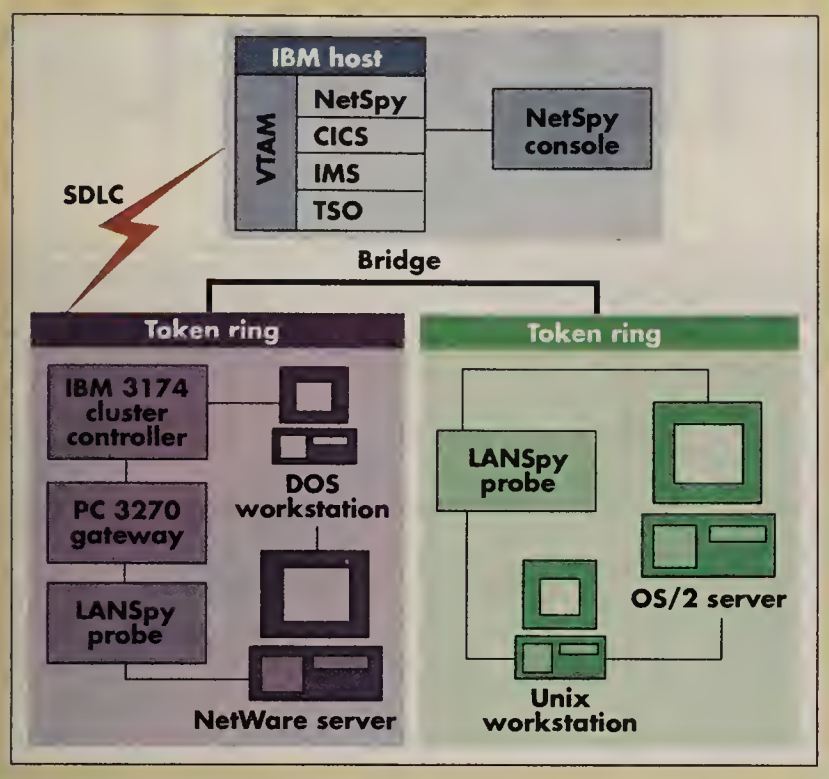
Legent's LANSpy at work



Source: Legent Corp. CW Chart: Stephanie Faucher

LANSpy gets the thumbs-up, but. . .

BY GARY H. ANTHES
CW STAFF

VIENNA, Va. — Nearly a year after the introduction of LANSpy — Legent Corp.'s mainframe-based tool for monitoring and troubleshooting local-area networks — users said it offers advantages over products that are strictly LAN-based.

However, some users said Legent should also offer a client/server version of LANSpy that can operate independently of the older, host-based NetSpy performance monitor.

NetSpy, introduced in 1986, provides response-time and other performance data in IBM Systems Network Architecture (SNA) networks. LANSpy — a NetSpy component introduced last December and now installed at 29 U.S. sites — is a Token Ring LAN-resident software "probe" that scans all data packets and periodically sends performance statistics to NetSpy. LANSpy monitors LAN errors, LAN-to-host SNA response time and LAN file server and gateway volume statistics.

Columbia Gas System Service Corp. in Columbus, Ohio, has two IBM mainframes, one running MVS and one running VM, and a nationwide communications backbone tying together some 50 Token Ring LANs at 14 locations. NetSpy runs on the MVS machine, and LANSpy runs on the company's most critical LANs, said Gordon Kinney, manager of VM and data-network technical support.

Kinney said Columbia Gas purchased LANSpy to collect LAN use data for long-term capacity planning but now uses it extensively for troubleshooting. He said an analyst at a central site can watch the company's LANs and spot and fix problems, sometimes before users are aware of them.

Who's in charge?

Some users said bringing LAN information back to a central host raises thorny jurisdictional issues when central and departmental computing come under different groups or when computing and communications are separately administered. "Who gets the phone call when a LAN user is having a performance problem?" asked David Gruzeski, senior systems programmer at General American Life Insurance Co. in St. Louis, a beta-test site for LANSpy. "It really depends on how the company is organized."

Gruzeski said a separate telecommunications group at General American had originally looked for a "LAN solution" — IBM's LAN Network Manager — but agreed to Legent's LANSpy when the group found the IBM product did not provide the performance data required.

Frank Dzubeck, president of Communications Network Architects, Inc. in Washington, D.C., said the question of whether LAN

Continued on page 52

Consortia lend planning hand

ATM, frame relay, SMDS chiefs lay down telecom guidelines at Interop

BY JOANIE M. WEXLER
CW STAFF

SAN FRANCISCO — Users trying to sort out the relative merits of today's emerging high-speed wide-area networking technologies gleaned a few pieces of planning advice from the presidents of the Frame Relay Forum, ATM Forum and SMDS Interest Group at the recent Interop '92 trade show.

A two-hour discussion with the heads of the consortia, which are charged with accelerating the development of telecommunications technologies that accommodate emerging high-speed applications, yielded at least some rules of thumb for users in transition who are worrying whether a certain technology will "win."

One user criterion is the time frame in which users intend to implement high-bandwidth applications, given that frame relay, Switched Multimegabit Data Service (SMDS) and Asynchronous Transfer Mode (ATM) are in different stages of availability.

One user, for example, said he was looking to link 15 nationwide sites with local-area networks — each with fewer than 20 sites — by the end of the year.

"Do I do point-to-point leased lines and wait to see how the technologies fall out?" he asked. "But then, what if there is no winner?"

The consortia acknowledged that given this user's time frame, he must choose frame relay or wait. However, they said there is no benefit in waiting because for multiple, small sites, leased lines are more expensive, and frame relay is widely available.

"You can still use frame-relay access to other technologies," said Alan B. Taffel, president of the Frame Relay Forum.

Alan B. Taffel *weighs the merits of new network technology with Northpoint Consulting principal Laura Capaldini*

"The biggest mistake you can make is to wait and keep paying leased line costs," added Fred Sammartino, president of the ATM Forum.

Another user questioned the reliability of frame relay for "lifeline applications." The panel explained that virtually every public frame-relay service automatically routes around faults because of fairly redundant switching mechanisms. In a leased-line scenario, on the other hand, a circuit failure means two sites quit communicating unless the user has purchased two for redundancy.

The need for speed

If users can wait for more service ubiquity with SMDS and ATM, speed requirements become a consideration. With the current generation of hardware and software for each of the technologies, frame relay is specified to run from fractional T1 speeds to 45M bit/sec. (T3); SMDS from 1.5M bit/sec. (T1) to 2.5G bit/sec.; and ATM from T3 to 622M bit/sec., Taffel said.

Some users said they were concerned about what the network providers are doing to deliver network management information to customers.

Steve Starliper, president of the SMDS Interest Group, said a primary 1993 agenda item for his consortium is customized network management via the Simple Network Management Protocol.

SMDS service currently does not offer this because the Management Information Base extensions are still under construction, Starliper explained. He noted that the only management currently available is a $15-per-month Borland International, Inc. Paradox database that details lost data packets.

Conversely, "most frame-relay providers are giving customers a window into their virtual networks," Taffel said.

The capability is largely allowed by StrataCom, Inc.'s FastPacket multiplexer platform, which is the base for many public frame-relay services. Its Foresight management software allows users to see congestion, peak use and average use by hour or minute.

Management is being defined in the first release of ATM, Sammartino said. While there are no public ATM services available now, he expects them in 1993, he said, citing ATM as being about a year away from prices competitive enough to justify mass deployment.

Points to ponder

Users learned a few specifics at an Interop gathering about the relative merits of frame relay, ATM and SMDS:

- Public frame-relay services have been priced to compete with leased lines for transporting inter-LAN and SNA traffic among multiple sites.
- Users requiring nationwide LAN interconnection today can choose frame relay with an easy conscience: It is an inexpensive technology to upgrade to and can interface to cell-based transports such as ATM and SMDS in the future.
- ATM wide-area services will be available from some long-distance carriers in 1993.
- MCI Communications Corp.'s recent rollout of nationwide SMDS service should encourage local carriers to accelerate their SMDS efforts. SMDS may end up the least secure service because it is a public-switched service.
- All three technologies can carry multimedia applications, though frame relay and SMDS are not optimized for it. Frame relay and SMDS would use highly compressed video, which would slightly degrade quality.

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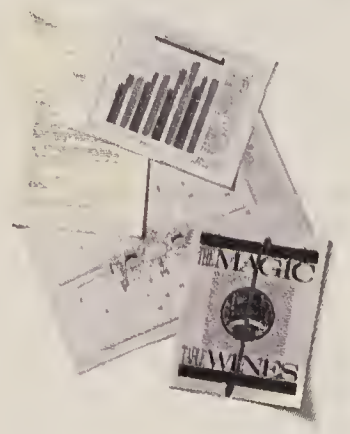

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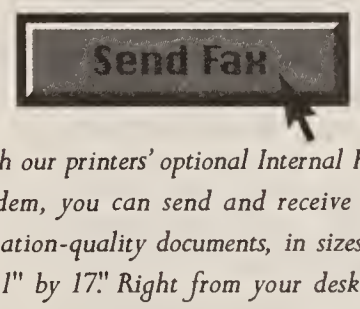

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COMPAQ

Graphical, LAN-based distribution system ships

BY LYNDA RADOSEVICH
CW STAFF

Start-up company Destiny Technology Corp. last week shipped DeliveryMan, a graphical, local-area network-based electronic software distribution system.

Aimed at users with 100-node or larger networks, DeliveryMan is a client/server application that allows network managers to install or update software on DOS, OS/2 or Microsoft Corp. Windows-based client stations from an OS/2-based dedicated server over NetBIOS and IPX/SPX LANs. Pricing ranges from $1,000 for 10 users to $4,500 for 100 users.

Citing reduced costs for disks, technicians' wages and end-user downtime, Stephen Bradley, program director at the Gartner Group, Inc. in Stamford, Conn., said, "Whatever the cost, the system pays for itself in less than a year."

Matthew Cain, program director at Meta Group, Inc. in Westport, Conn., estimated that businesses with 1,000 PCs spend an average of $50,000 annually just for software distribution. That includes one "bug fix," two application upgrades and one operating system change per year, assuming labor charges of $40 per hour and 20 minutes per upgrade.

"Today, an individual has to go from machine to machine doing the floppy disk shuffle," Cain said. "This method is labor-intensive and very costly." Electronic software distribution can help cut those costs, he said.

In addition to cost savings, electronic software distribution enables companies to simultaneously distribute client/server applications across geographically dispersed networks in a way that "wasn't physically possible before," Bradley said.

Using DeliveryMan, a network administrator can compress software program files, choose recipient clients, fill client information into graphical forms and simultaneously transmit the software from the DeliveryMan server.

A built-in scripting language allows the administrator to modify the necessary client files such as AUTOEXEC.BAT. Users at client stations can choose to accept the software update or wait until later. DeliveryMan stores transaction records in a database on the server and provides standard reports.

The updating process took "less than three minutes to deliver Windows 3.1 over Ethernet," said Scott H. Broder, president of Destiny Technology.

The software also addresses licensing — a sensitive issue with many network administrators — with a license tracking feature.

Distribution systems already exist in the mainframe environment, including IBM's Distribution Manager, AM:PM from Tangram Systems Corp. in Cary, N.C., and Synchrony from Farmington, Conn.-based Telepartner International.

DeliveryMan "is not as sophisticated or fully functional as mainframe-based solutions, but it is very simple and it seems to work," Bradley said. "The environment is LAN-based, so administrators can distribute applications without relying on the host data center."

In October, Novell, Inc. introduced Network Navigator DOS-LAN Distributor 2.0, an electronic software distribution system that runs on NetWare-based LANs. The product was developed by Annatek Systems, Inc., which Novell purchased last summer [CW, Oct. 5].

Analysts predicted that client/server-based electronic software distribution will become a function of operating systems such as Microsoft's Windows New Technology in a couple of years.

LANSpy gets thumbs-up

CONTINUED FROM PAGE 49

tools should be LAN- or host-based depends on how they are to be used. "You don't want to manage LANs from the glass house," he said. "But this isn't management; it's performance monitoring. You'll always have centralized monitoring."

Indeed, users said host-based LAN monitoring and capacity planning allow use of a rich set of mainframe analytical tools. For example, one LANSpy user said LANSpy data is processed and presented by Legent's mainframe-based set of integrated management tools for use analysis and work load and capacity forecasting.

Nevertheless, Dzubeck said, Legent will eventually have to deliver a mainframe-free version of its network products. "The equivalent of NetSpy must be produced for the LAN. Otherwise, this is just a master/slave relationship, and that is not the way the industry is going. It's going distributed."

Houston-based Texaco, Inc. has installed LANSpy at two of 19 major U.S. sites so far, and Sam Kapadia, telecommunications consultant, said he would like to use it for both centralized monitoring and localized troubleshooting. "At our [Houston] network control center we can look at LANs throughout the corporation, see end-to-end response time and do capacity planning. But at the same time, LAN administrators at local sites want to see the utilization of the LAN without having to log on to the mainframe."

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IN BRIEF

IBM to license Wollongong software

■ **IBM** will license networking software from the **Wollongong Group, Inc.** in Palo Alto, Calif., to use in future networking products that it expects to announce in the fourth quarter of this year. The products include IBM network/transport software and virtual terminal, terminal emulation, file transfer and high-level scripting language services for use on DOS, Microsoft Corp.'s Windows, the Apple Computer, Inc. Macintosh, OS/2 and Unix workstation platforms in an IBM/Digital Equipment Corp. host environment.

Separately, the Wollongong Group announced that **Harris Space Systems Corp.** has selected its new Management Station as the Simple Network Management Protocol manager for the **Kennedy Space Center**'s Core Electronics Systems Project.

■ **Sun Data, Inc.** in Norcross, Ga., announced a new division to help customers integrate IBM Application System/400 minicomputers with local- and wide-area networks. The division will help customers install Novell, Inc. NetWare or IBM Token Ring LANs, integrate them with new, upgraded or existing AS/400s, load software and train systems managers.

■ **Syntrex Technologies, Inc.** in Eatontown, N.J., a wholly owned subsidiary of **Phoenix Technologies Ltd.**, launched a network management and support center that gives Syntrex engineers the capability to remotely manage customers' networks on a 24-hour-a-day basis.

■ **Frontier Technologies Corp.** in Mequon, Wis., will offer Super-NNTP for Windows in November, the company announced. The product will allow Internet users to access network news from a Microsoft Windows desktop.

■ Following its acquisition of Provo, Utah-based **ServicePoint Development Corp.**, **Network Computing, Inc.** in San Jose, Calif., is offering the ServicePoint automated help desk as a component of its LANAlert system management suite. ServicePoint pricing starts at $995 for a single user and $12,995 for a site license.

■ **Northern Telecom, Inc.** and **Network Systems Corp.** in Minneapolis have agreed to work together to develop cell-switching technology and products for LANs and WANs.

Also, **Vitalink Communications Corp.**, a wholly owned subsidiary of Network Systems, reduced prices on its 6600 line of single-board Fiber Distributed Data Interface-to-Ethernet bridge routers. The 6612 and 6617 models were reduced from $24,000 to $19,500 and $28,000 to $22,000, respectively.

■ **Teleglobe Canada, Inc.** has formed a consortium with 20 European and U.S. telecommunications carriers to lay a $385 million high-capacity fiber-optic cable linking North America with Western and Eastern Europe. Teleglobe claims the cable, which is slated for service by December 1994, will have 300% more capacity than current fiber-optic technology.

■ **Fibermux Corp.** has rolled out Windows and Unix versions of LightWatch/Open, the Chatsworth Calif.-based company's network management system integrated with **Hewlett-Packard Co.**'s OpenView network management environment.

■ **Cisco Systems, Inc.** in Menlo Park, Calif., signed an agreement under which Italy's **Ing C. Olivetti & Co.** will resell Cisco's internetworking products — including multivendor routers and communciations servers — as part of Olivetti's European-based network integration business.

■ **Chipcom Corp.** in Southboro, Mass., will port its ONdemand Network Control System software package to **DEC**'s network management platforms in the first quarter of 1993.

■ **Tennessee Temple University** in Chattanooga, Tenn., has awarded **Memorex Telex Corp.** a contract worth approximately $500,000 to provide 145 I486SX PCs and Extended Industry Standard Architecture-based servers, as well as Novell and Synoptics Communications, Inc. products. The contract will include network design, installation, integration and training, the Irving, Texas, vendor said.

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SoftSwitch adds more enterprise mail gateways

BY JOANIE M. WEXLER
CW STAFF

SAN FRANCISCO — Electronic-mail connectivity vendor SoftSwitch, Inc. was a high-profile player at the recent Electronic Mail Association conference in moving users closer to their goal of building enterprise messaging networks from a patchwork of disparate systems.

The Wayne, Pa., company, which earlier this year rolled out a downsized version of its mainframe-based mail gateway system, made several announcements that address some of the concerns users expressed at the show about platform-to-platform connectivity [CW, Nov. 2]. These included the following:

• Gateways that allow Lotus Development Corp.'s CC:Mail and Microsoft Corp.'s Microsoft Mail users on local-area networks to communicate with X.400, IBM Systems Network Architecture Distributed Services and Transmission Control Protocol/Internet Protocol mail networks supported by SoftSwitch's mainframe-based translation software, SoftSwitch Central. The CC:Mail version quietly became available last month; the Microsoft Mail version began beta testing last month, and no ship date has been announced.

• Support of Apple Computer, Inc.'s Open Collaborative Environment (OCE), an extension of the Macintosh System 7.0 operating system that provides services such as messaging, directories and authentication. OCE support on SoftSwitch's distributed Enterprise Messaging Exchange (EMX) means the EMX can serve as a backbone for transport and directory services for OCE-compliant Macintosh applications.

• Implementation services, available immediately, to help customers simplify messaging system integration.

• A message switch, based on the EMX architecture, to allow public carriers to switch messages among different local area network-based systems.

Also at EMA, Apple announced three Open Systems Interconnect (OSI)-oriented products: MacX.400, which allows users to send mail from a Macintosh to other types of desktop computers and to recipients who use proprietary mail systems; MacODA, a software translator that allows the interchange of documents among different applications and platforms; and OSI Connection for Macintosh, which allows Mac applications to run across OSI networks.

Meanwhile, Verimation, Inc. in Rockleigh, N.J., released Version 4.0 of its Memo mail-oriented product, which adds PCs and other LAN-based desktop platforms to its mainframe-based office communications system. The Memo product blends mail, business applications, work-flow and document management functions into one package.

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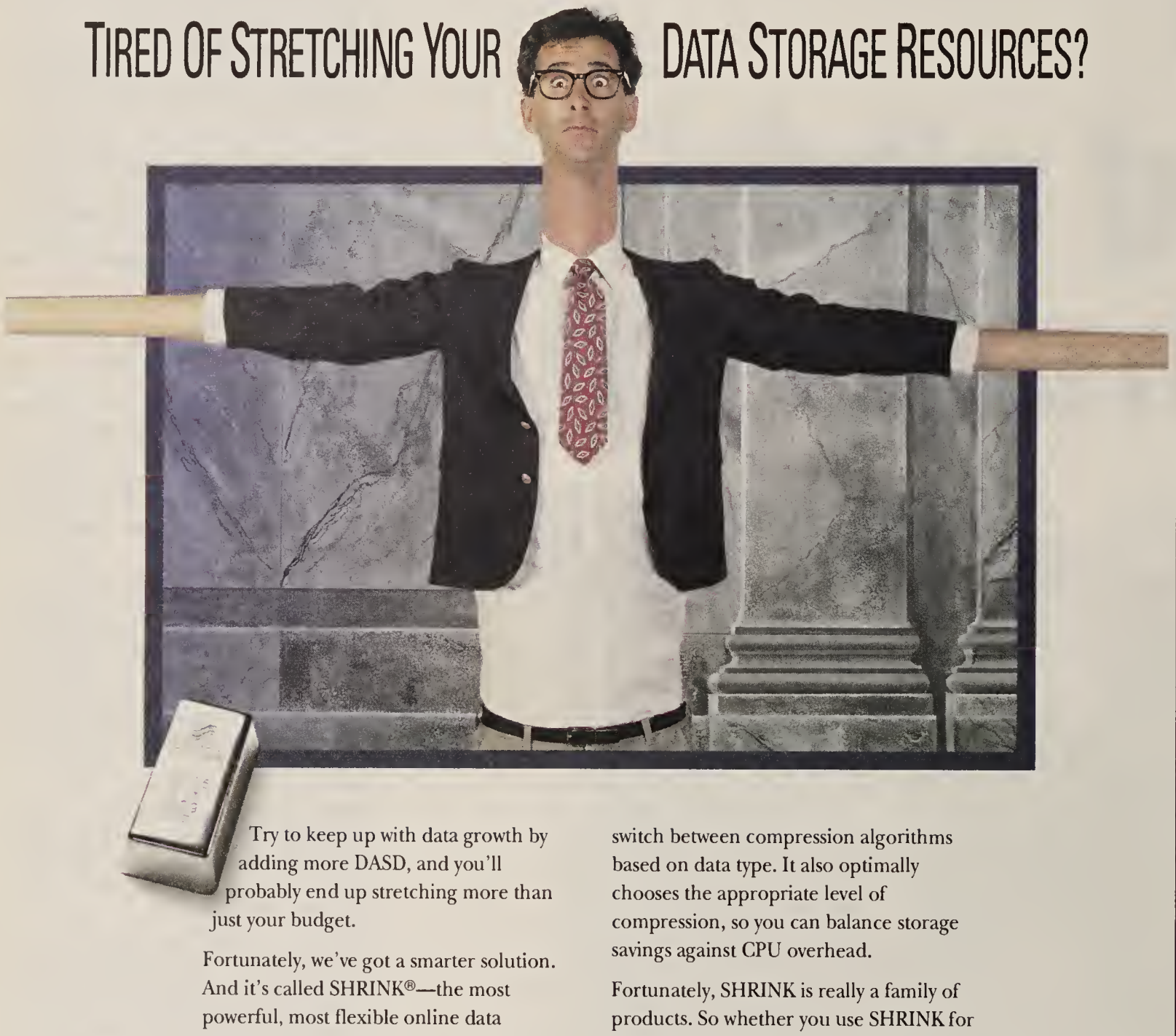

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Interop notebook

Announcements made at the recent Interop '92 conference included the following:

• **Bus-Tech, Inc.** in Burlington, Mass., will join with **Novell, Inc.** and **IBM** to market an implementation of NetWare for Systems Application Architecture (SAA) on the IBM 3172 communications controller. The built-in channel-based connection of the Bus-Tech 3172-BT1 eliminates the need to use an IBM 3174 cluster controller or equivalent as an extra piece of hardware between the NetWare for SAA server and the mainframe, the vendors said.

In addition, the 3172 is five to seven times faster than the 3174, which was not designed to support local-area network-to-host connections, an IBM spokesman said.

The product will also support direct mainframe access for other NetWare Loadable Modules, providing users with applications such as SQL database access. With pricing beginning at $21,950 for hardware and software, the 3172-BT1 is scheduled for December availability.

• **NetManage, Inc.** in Cupertino, Calif., announced what it claims is the first Transmission Control Protocol/Internet Protocol (TCP/IP) application for Microsoft Corp. Windows for Workgroups Version 3.1. The product extends NetManage's Chameleon product, which provides users with access to TCP/IP from Microsoft's Windows and Windows New Technology. Priced at $400, Workgroup Chameleon is shipping now.

• **NCR Corp.** announced support for the **Open Software Foundation**'s Distributed Computing Environment (DCE), which will be made available across the NCR System 3000 Unix V Release 4 family.

The DCE implementation will include application support and DCE Core Services, including DCE Cell Directory and Security Services, NCR said. The DCE Global Directory Service will be integrated with NCR's Open Directory500 distributed X.500 directory service, the vendor said.

NCR's Top End on-line transaction processing software will be able to make use of DCE remote procedure calls, and NCR's Star Sentry network and systems management software will support DCE as part of its evolution to OSF's Distributed Management Environment, NCR said.

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NEW PRODUCTS

Network management

Tekelec has started shipping Version 1.0 of ChameLAN 100 Token Ring analyzer.

According to the company, the product can support simultaneous analysis of multiple Token Ring local-area networks and will include diagnostic functions similar to those of ChameLAN 100 Fiber Distributed Data Interface and Ethernet products.

New protocol decode support is provided for interfaces, including Novell, Inc.'s NetWare, Sun Microsystems, Inc.'s Sun NFS and Apple Computer, Inc.'s AppleTalk.

Through the system's DeskTop interface, users can choose multiple LAN segments to analyze. Data can be captured, viewed or filtered in real time on each indivdiual test interface.

The ChameLAN 100 costs $6,500.

Tekelec
26580 W. Agoura Road
Calabasas, Calif. 91302
(818) 880-5656

Network Security Systems, Inc. has introduced LanSafe II network power management software.

The product was designed to provide an integrated approach for centrally managing electrical power to all local and remote network components. Interactive management and control power management devices are provided for components such as data communications servers, critical workstations, bridges and file servers.

By using the software's management console screen, users can monitor real-time loads and troubleshoot power management problems and battery and voltage status.

LanSafe II software for Novell, Inc. networks costs $135.

Network Security Systems
9401 Waples St.
San Diego, Calif. 92121
(619) 587-7950

Frye Computer Systems, Inc. has introduced the NetWare Console Commander.

According to the company, the product allows users to automatically schedule any Novell, Inc. NetWare 3.1 console command to automatically take place at the time set.

NetWare Console Commander was designed to clear connections that interfere with backups, load and unload Netware Loadable Modules, send messages, set NetWare's setable parameters, run NetWare Command Files and run any server-based program. A screen-saver with password protection is also included.

The product costs $395.

Frye Computer Systems
19 Temple Place
Boston, Mass. 02111
(617) 451-5400

Metrix Network Systems has announced NetMetrix 3.0, an Internetwork Monitor designed for Ethernet, Token Ring and Fiber Distributed Data Interface networks.

It offers compatibility with RMON, the Simple Network Management Protocol standard for monitoring remote local-area networks. The product collects data from RMON agents running on each segment in the network and has software that runs on a standard Unix platform. The data is integrated and correlated for complete end-to-end visibility of a multisegment network, the company reported.

Version 3.0 works in conjunction with the NetMetrix Load Monitor, which offers analysis of the traffic on the LAN. Traffic can be measured and graphed by the Load Monitor by source, time interval, destination, packet size or protocol.

License prices start at $1,995 per tool.

Metrix Network Systems
1 Tara Blvd.
Nashua, N.H. 03062
(603) 888-7000

Gateways, bridges, routers

Hayes Microcomputer Products, Inc. has announced the Hayes Millennium 8000 Network System.

According to the company, the product provides a high-density communications platform that offers an upgradable solution for wide-area connectivity to both local-area network and host environments. Up to 16 Line Cards and two System Controller Cards are provided. Each Line Card has the capacity to provide between one and eight communications devices, including Integrated Services Digital Network terminal adapters and high-speed modems.

Support is provided for control management and access to a LAN by each controller card. An overall capacity of up to 128 communication devices per chassis is provided.

Prices range from $1,000 to $1,300 per port.

Hayes Microcomputer Products
5835 Peachtree Corners East
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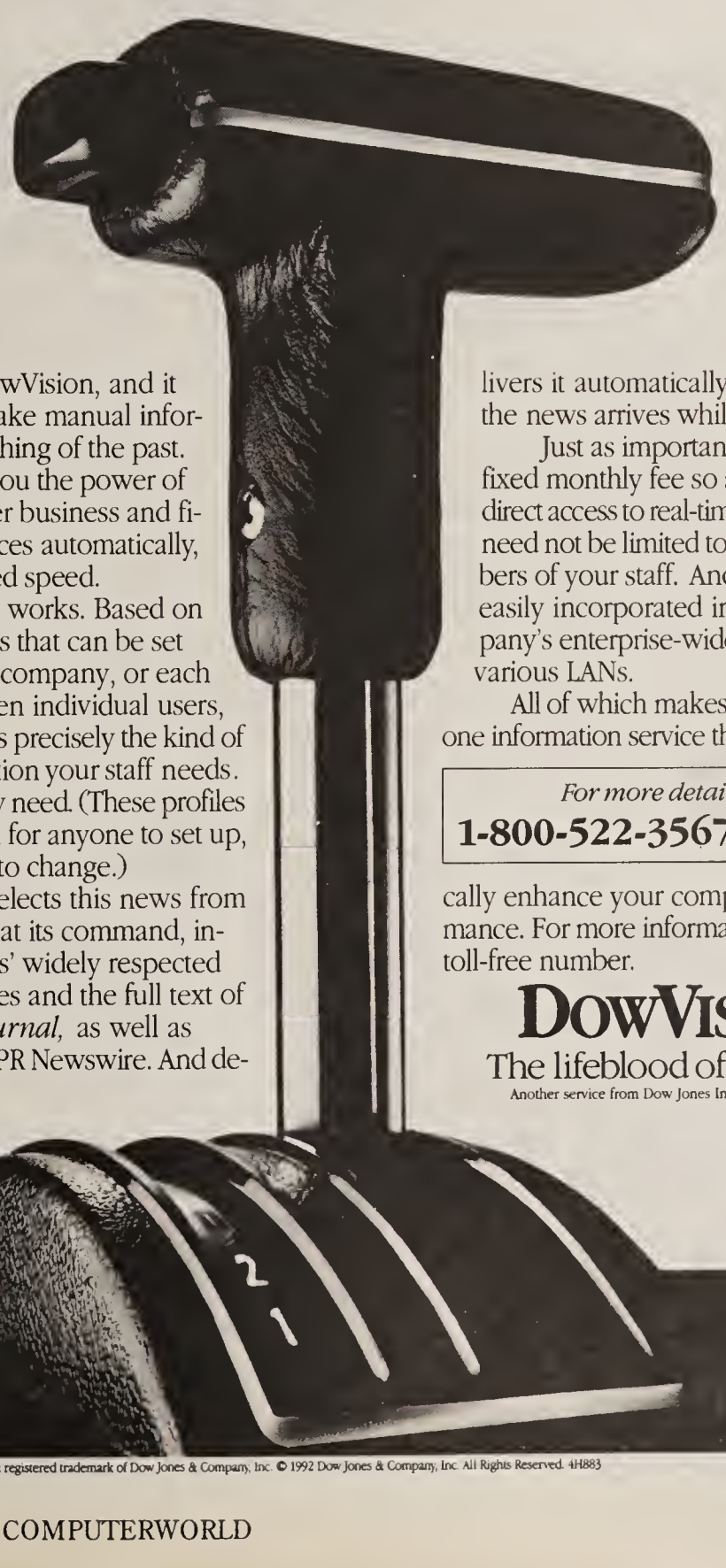

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IN BRIEF

User groups swap lists

■ The **IBM** user group **Guide International** and the open systems standards organization **X/Open Co.** have exchanged membership lists so members of one group are now automatically members of the other.

■ **Compuware Corp.** has filed a registration statement for an initial public offering. Additionally, the company has signed a letter of intent to acquire **Landmark Systems Corp.**'s Eyewitness CICS fault-diagnosis tool.

■ More vendors have jumped on **IBM**'s Distributed Relational Database Architecture (DRDA) bandwagon. **Object Technology International, Inc.** and **XDB Systems** have announced products that provide access to IBM's relational database managers. **The Ask Group's Ingres Products Division** and **Progress Software Corp.** said they will deliver DRDA gear.

■ **Intel Corp.** named Wendy Vittori general manager of the Intel Supercomputer Systems Division European Operation. Vittori, who has been director of marketing and strategic planning at the Supercomputer Systems Division in Beaverton, Ore., will also direct the operation of Intel's Supercomputer Development Centre in Munich, Germany.

CA/Citicorp deal spells change

Agreement may force big iron software vendors to abandon tiered pricing

BY THOMAS HOFFMAN
CW STAFF

Since Citicorp landed a five-year, flat-fee software licensing agreement with Computer Associates International, Inc. last month, users, analysts and software vendors have expressed mixed views on whether the agreement will force mainframe software vendors to abandon the standard tiered-pricing model in favor of alternate pricing options.

"Other mainframe software vendors will have to address this in their own way," noted Ed Acly, director of software research at Technology Investment Strategies Corp., a Framingham, Mass., market research firm.

Those vendors will have to adopt alternate pricing schemes, agreed Jerome Doniger, general manager of the technology support division at the U.S. Postal Service (USPS). He cited the changing technological needs of customers who are moving away from mainframe-centric computing to distributed computing environments.

The USPS became the first federal agency to agree to a flat-fee enterprise licensing agreement with CA — only a week after the Citicorp deal was announced [CW, Oct. 19].

Doniger said the USPS is working to restructure its licensing agreements with its nine primary software vendors. So far, it has inked new enterprise licensing agreements with CA and Legent Corp. in Vienna, Va. Doniger said the federal agency is still negotiating a deal with IBM.

A spokesman at IBM said the Armonk, N.Y., computer firm has no plans to shift away from tiered pricing for mainframe software. While the spokesman said the firm will continue to work with its customers on improving the price/value ratio, he said no major licensing changes are in store.

John Burton, president and chief executive officer at rival Legent, said his company has offered its customers flat-fee enterprise licensing for several months, though the firm did not announce it publicly.

"If you have outstanding problems with your pricing, you have to make a lot of noise. We don't have outstanding problems with our customers," Burton said.

Early clients of Legent's enterprise licensing program, Burton said, include Pacific Bell, Ameritech Corp. and The Boeing Co.

The enterprise licensing program Legent offers includes individual and multiple site licenses, with options for predetermined cost escalations for software, Burton said. Customers under this program are not forced to pay upgrade charges based on hardware changes, he said.

Pay per MIPS

Unlike CA's enterprise licensing program, which charges customers based on the number of millions of instructions per second (MIPS) of computing power required to run the software, Legent enterprise licensees pay a flat-fee based on the "value" of the software, Burton said.

Most users said they would have to evaluate the range of pricing options before deciding on the licensing agreement that best suits their company's needs. For example, Tom Loane, vice president of computers and communications at Alamo Rent-A-Car, Inc. in Fort Lauderdale, Fla., said his company would not license software based on MIPS use because Alamo has been increasing its MIPS use 50% annually.

Dick Kane, department head of technical infrastructure and support at ITT Hartford, said his company would favor enterprise-wide licensing because it would allow the firm to run software across its multivendor environment without paying additional costs. But Kane said he would like to evaluate alternate pricing plans before deciding.

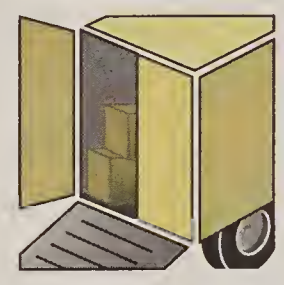
Manufacturers upgrade logistics applications

BY JOHANNA AMBROSIO
CW STAFF

Until this year, the Church of Jesus Christ of Latter-day Saints was using a warehouse-management system that was "older than dirt," said Ben Christiansen, warehouse operations manager. Now that a spanking new computer setup has been brought in, four positions have been eliminated and merchandise is easier to find.

The church is not alone. As small and medium-size manufacturers scramble to modernize their computers, they are finding a host of benefits to adopting a new approach to managing the warehouse and other aspects of the business.

"It used to be that manufacturers looked at each function — transportation, purchasing, manufacturing, logistics — and managed and optimized them separately," said Martin Piszczalski, director of the manufacturing automation service at The Yankee Group in Ann Arbor, Mich. "Now they're looking at the whole picture to see how to improve customer service."



Warehouse management is one part of logistics, which is broadly defined as the movement of raw goods and merchandise from suppliers to the manufacturer and then to the manufacturer's customers.

"The old method and old software in place was based on guessing what was in there," said Curt Monash, a software analyst in New York. "And the old software was not tied to real business schedules. The new method is based on knowing exactly what is there and where it is." Another reason to modernize the software, Monash said, is the movement to distributed computing, which forces the issue of new hardware, software and database management systems.

Customer service was one driving motivation behind the modernization move at the church's 186,000-sq-ft warehouse in Salt Lake City. "We are like our civilian counterparts," Christiansen said. "My personal goal is to have flawless customer service."

The warehouse stores and ships 465,000 cases of merchandise per quarter, with an annual dollar volume of $30 million. Bibles and other printed material account for most of the goods shipped, but there is also the occasional refrigerator, cement mixer or forklift that comes through.

Continued on page 62

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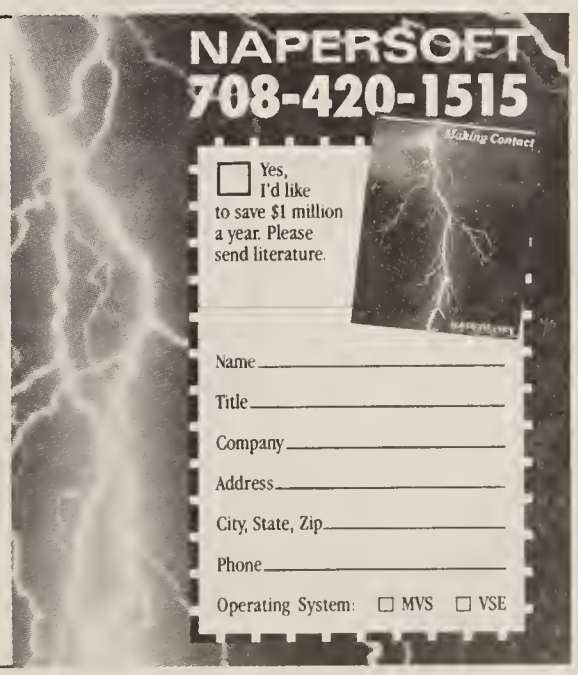


IBM accuses resellers of selling fake parts

BY LYNDA RADOSEVICH
CW STAFF

Seven third-party resellers distributed modified IBM code and circuit cards represented as genuine IBM parts, IBM charged in a recent lawsuit.

The suit, filed in U.S. District Court in Charlotte, N.C., last month, accuses the firms and five individuals of selling counterfeit circuit cards for IBM 3174 Establishment Controllers that connect workstations with mainframes. IBM is seeking temporary and permanent injunctive relief and undetermined monetary damages.

IBM recently mailed letters to the installed base of 3174 customers notifying them of the possibility of counterfeit parts and explaining that the cards do not comply with IBM standards and are not covered by IBM maintenance agreements. The company said it does not know how many counterfeit cards have been sold.

Named as defendants in the suit were American Data Company, Inc. in Charlotte, N.C.; Brookwood Computer Industries, Inc. in Alpharetta, Ga.; ClassicBlue Computer Services, Inc. in Randolph, N.J.; Com-Gear Unlimited, Inc. in Canton, Ga.; Computer System Services, Inc. in Canton, Ga.; Five Star Computer Services, Inc. in Carrollton, Texas; Savon Systems, Inc. in East Setauket, N.Y.; and five individuals.

The card in question — the 3270 Port Expansion Feature — allows the 3174 to connect to 64 ports rather than the standard 32. It sells for $4,865. The port expansion software code sells for $1,265. The company has shipped 200,000 3174s since the machine's introduction in 1986.

"We believe we are only seeing the tip of the iceberg," an IBM spokesman said.

No failed systems have been traced to the bogus IBM cards yet, but IBM claims the cards do not comply with IBM standards and can cause systems to fail.

Customer warranties from IBM would not cover the parts, even if users did not know the parts were counterfeit.

"That's just good business practice," said Frank Dzubeck, president of Communications Network Architects, Inc. in Washington, D.C.

IBM also said it would bill customers for maintenance it may have unknowingly provided on counterfeit parts. The company said it will continue to support customers and the genuine IBM parts of the system (see story below).

Surprise, surprise!

Several of the defendants seemed surprised by the charges.

John Lavin, president of ClassicBlue Computer, said, "There was no way for us to know" whether ClassicBlue was distributing modified IBM parts. "IBM never trained us to spot counterfeit software." According to IBM, the counterfeit parts come complete with fake IBM labels.

Others defendants in the suit who were contacted said they expect to reach an agreement with IBM.

The suit is the most recent in a string of actions that IBM has filed in the past 18 months. For example, in October 1991, IBM charged Comdisco, Inc., a computer leasing company in Rosemont, Ill., with passing off counterfeit IBM memory cards. The suit is ongoing.

IBM would not say how it is tracking the counterfeit parts, but it is being "much more aggressive" in managing its maintenance contracts and is increasing the number of physical, on-site inspections of its equipment, Dzubeck said.

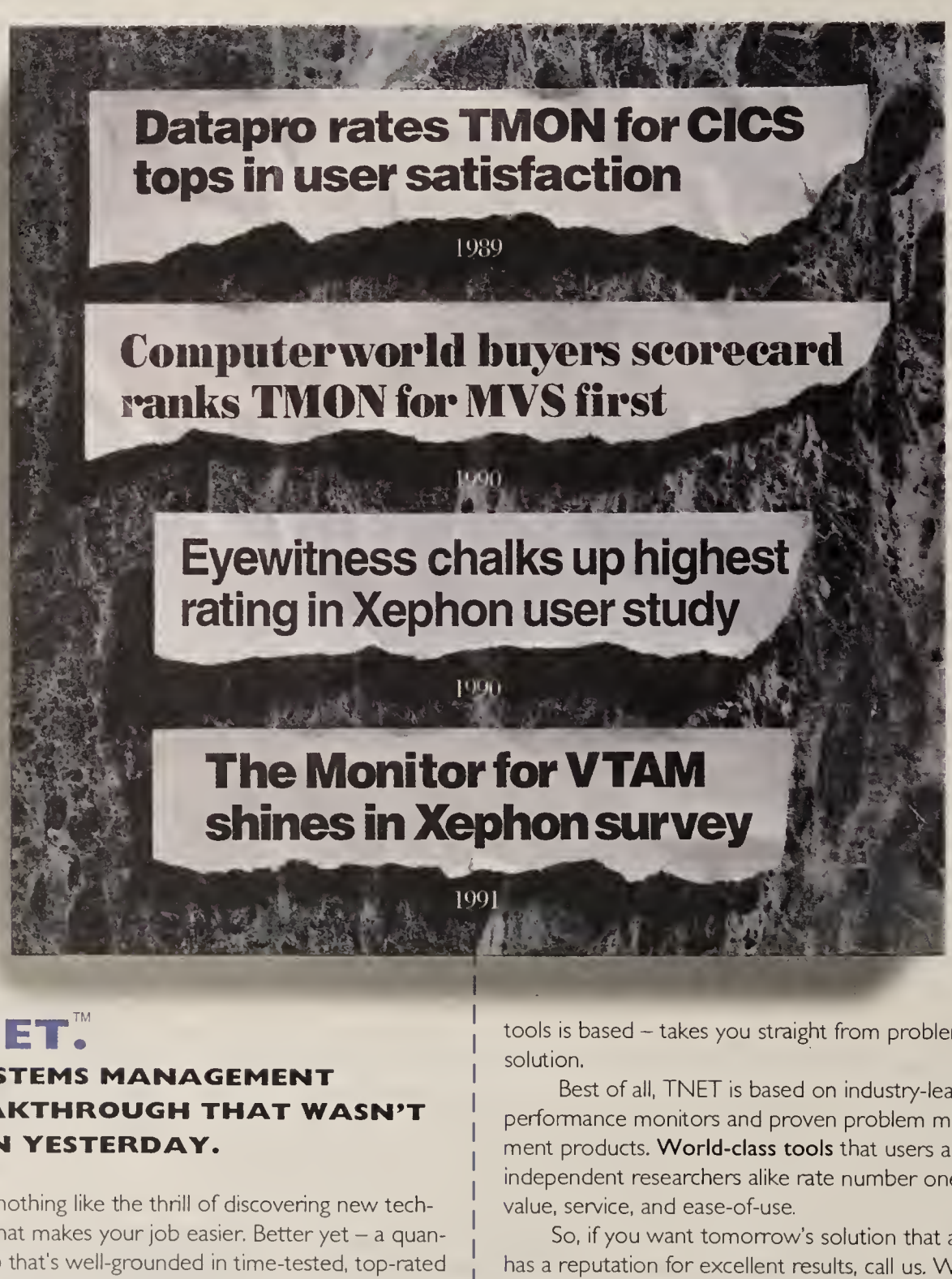
Duped?

Say you discover your IBM 3174 has parts you thought were genuine IBM but that were, in fact, modified. What do you do?

IBM said customers should contact suppliers and get a guarantee that only genuine IBM parts were used. If IBM finds a counterfeit part, it will not cover it under an IBM warranty. "If the customer chooses to maintain an IBM agreement, we recommend they buy a genuine IBM part," said George Mills, the establishment subsystems planning manager at IBM.

"I would go back to the person who sold it to me and ask for my money back," said Frank Dzubeck, president of Communications Network Architects in Washington, D.C.

IBM will check customers' systems for counterfeit parts for a fee. Users should contact an IBM marketing representative for pricing.



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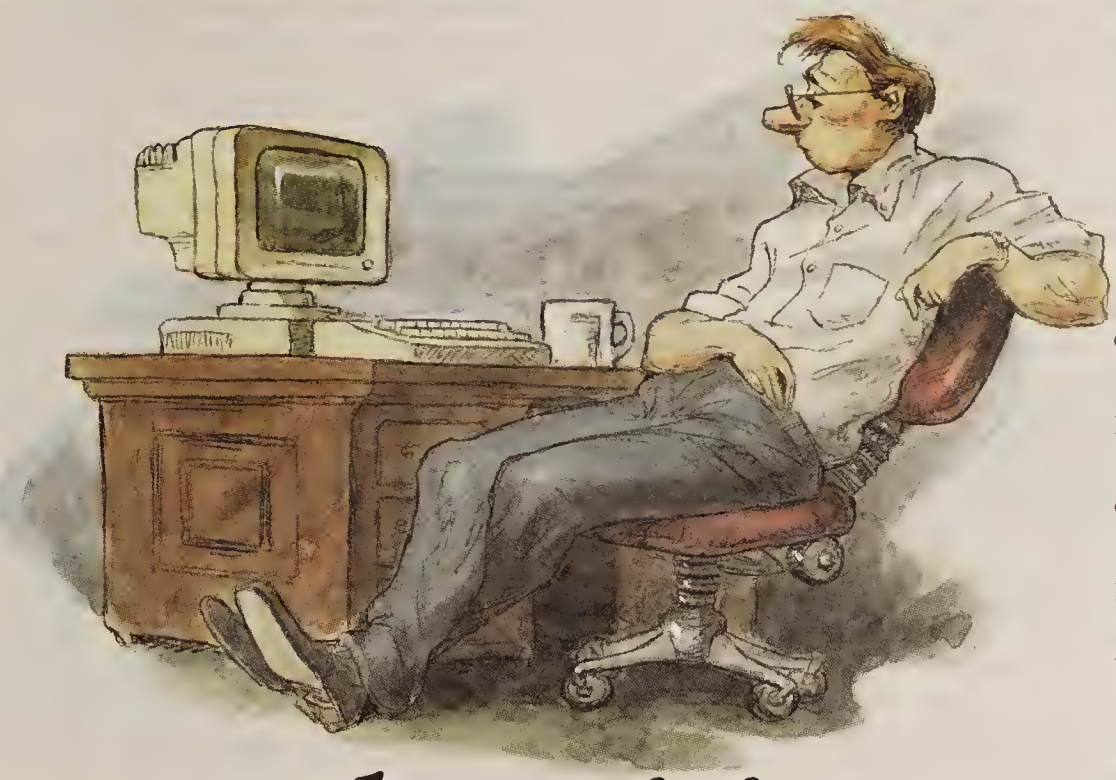

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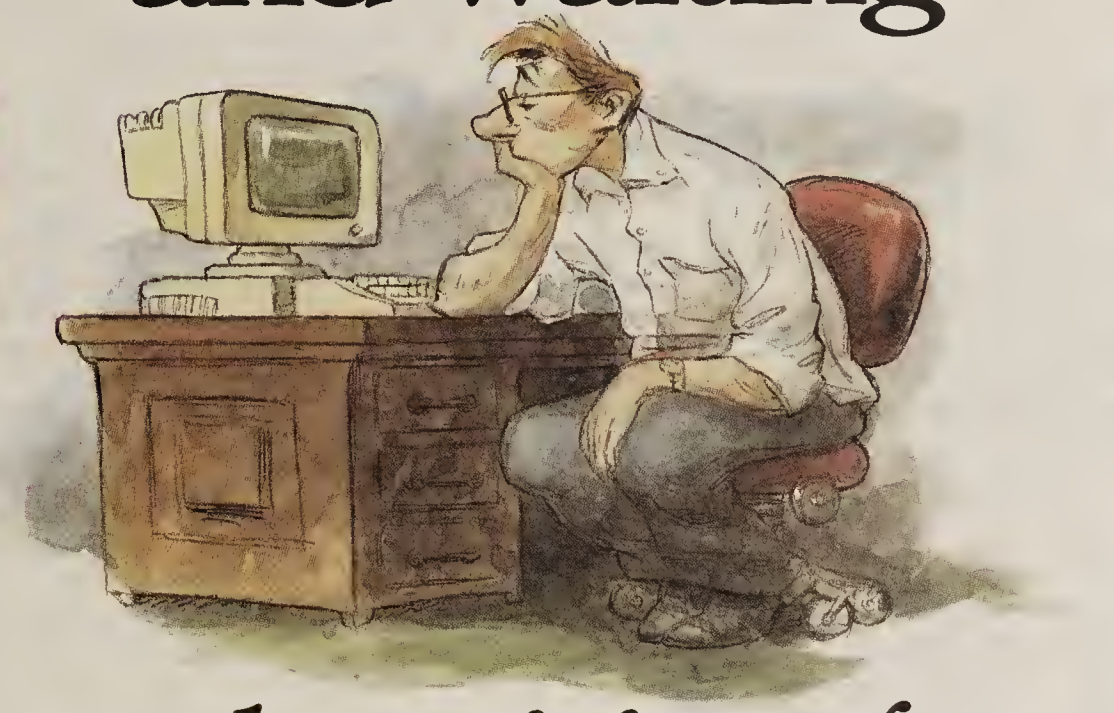

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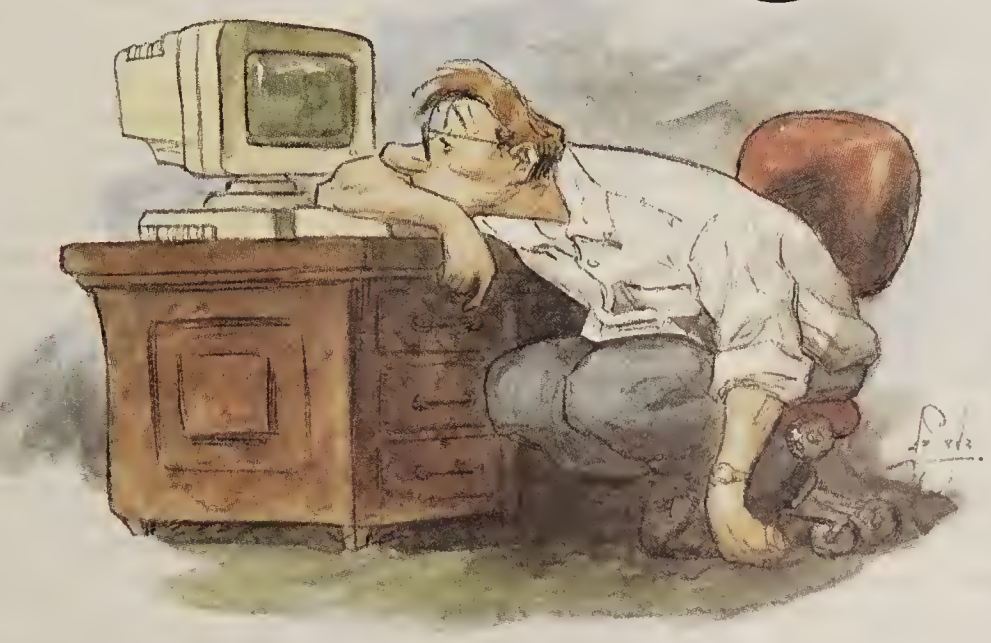

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'Software agents' make headway on office tasks

BY JEAN S. BOZMAN
CW STAFF

SANTA CLARA, Calif. — Small firms may find themselves shorthanded when it comes to handling routine office tasks and processing purchase orders. A small Silicon Valley firm claims to have an answer to that quandary in the form of "software agents" that can answer the phone, retrieve vital information from the corporate database and send orders out the door.

Edify Corp. has been shipping its Information Agent software on a specially equipped IBM PC running OS/2 since February. Last month, as it was seeking another round of funding, the 50-person firm enhanced its bundled office system. Edify now has "express agents," or preprogrammed, object-oriented programs that know where to find data and how to pass it along to telephone callers or to customers with fax machines. They can also be interfaced with character-based electronic data interchange applications, the 2-year-old firm said.

The express agents are designed to speed development of Edify applications by business managers, often without the advice and counsel of information systems programmers. "We sell to the end users, not to IS," explained Charles Jolissaint, the firm's chief technical officer. "Our interface is set up so that a power PC user who can set up macros can set up the [Edify] application." Users manipulate icons written in the object-oriented C++ language, which can be reused in other applications.

Early users say the $70,000 system — complete with hardware and special fax and phone cards — can pay for itself in a few months; individual agents are priced at $7,500 each. "It's like you hired a person to manage your routine business tasks 24 hours a day," said Marty Martin, manager of customer service at Xilinx, Inc., a $135 million semiconductor maker in San Jose, Calif. Technical support personnel head home at 5 p.m., but European customers can check on their orders all night long, accessing an Ingres Corp. database on a Sun Microsystems, Inc. server.

Industry analysts said Edify works on a very high level of abstraction. It does not carry out SQL queries against relational databases, for example, but it can pass along query results for inclusion in user reports. "They rely on the fact that connectivity to all the relevant databases must already be in place," said Christina Filistowicz, a senior analyst at Dataquest, Inc. in San Jose, Calif. The underlying database and its applications then treat the actions of the Edify agents exactly as if they were human users logged on to the system.

The product's fax and telephone support allows Edify users to add Touch-Tone telephone queries to databases, using synthetic speech to read the data aloud to callers. So far, however, Edify is limited in that it works with character-based screens only; a Microsoft Corp. Windows version is about six months away from shipment, Jolissaint said.

Spending cutbacks hit home

BY JOHANNA AMBROSIO
CW STAFF

A study recently released by Nolan, Norton & Co. confirms what every data center manager must surely know by now: Data center staffing and spending levels are down across the board.

But other trends also emerge: Small data centers have been harder hit than their larger counterparts, the mix of data center employees has remained relatively stable during the last 12 months, and shops are using their disk storage resources more efficiently than ever.

The information for the study, based on surveys conducted at 200 Nolan, Norton client sites, includes data from 1990 and 1991. The information was compiled in April and was publicly released by the Boston-based consulting firm late last month.

For statistical purposes, a large data center is defined as having an active work load of at least 100 million instructions per second (MIPS); a small center has below 100 MIPS. All of the numbers that reflect a decrease or increase are compared with the respective numbers taken for the year-earlier period.

No spending spree

Spending on technology — which includes mainframes and minicomputers, tape and disk storage and systems software — dropped 7% at small data centers and 4% to 5% at large ones. "Spending on processors, disk and tape decreased, while spending on systems software increased," said Tom Hickey, senior manager at Nolan, Norton.

For example, he said, processor spending declined 12% at small data centers vs. 7% at larger ones, while systems software spending actually increased by 9% at small data centers and by 2% at larger shops. Systems software spending would be up even more, Hickey said, were it not held down by consolidation moves and programs in user shops to get rid of seldom-used packages to cut down on maintenance costs.

On the personnel side, staff levels decreased by 10% in small data centers vs. 6% for their larger counterparts. One explanation, Hickey said, is that "where large shops automated early on, smaller data centers are kind of catching up." Likewise, personnel spending decreased by 10% at smaller data centers and by 1% to 5% at larger shops.

Other trends picked up include the following:

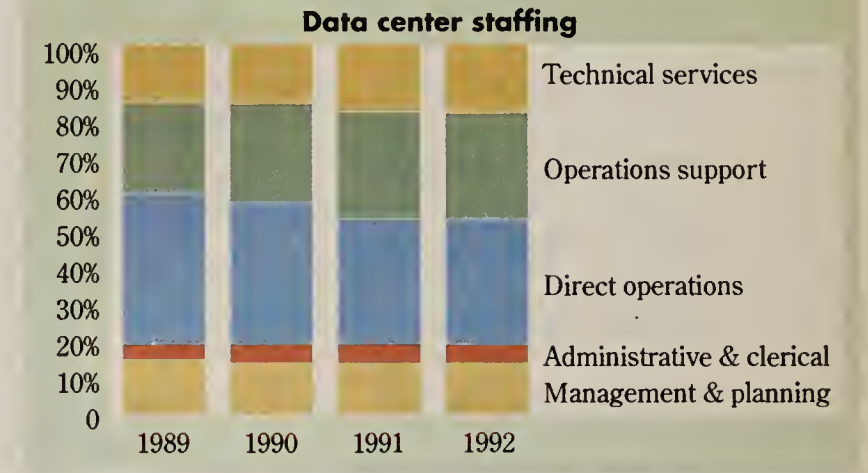
- Disk storage, which averaged 7.5G bytes for every MIPS of computer work load, has decreased to 7.1G bytes. "That says that people are running a lot tighter than in the past," Hickey said.
- Response times continue to improve. "Subsecond response times are no longer the exception," Hickey said.
- Levels of manually intensive activities, especially in tape mounting and printing outside of the data center, continue to decrease. Manual tape mounting dropped by 35%, Hickey said, mostly because of the use of automated tape loaders and tape silos. On the print side, the number of pages printed out of the data center decreased by 12%.

Factors here included use of print viewing software; two-up and four-up printing; downloading printing jobs to local-area networks and PCs; and redesigning some applications to use local print more efficiently.

The "general belt-tightening" will continue next year, Hickey predicted, as will more use of plug-compatible hardware because of better prices.

Support grows

Service and support roles are the ones showing even slight growth on data center staffs



Source: Nolan, Norton & Co.

CW Chart: Michael Siggins

Sequent expands Symmetry line's clustering capability

BY MARK HALPER
CW STAFF

BEAVERTON, Ore. — Sequent Computer Systems, Inc. last week added a host of hardware and software features to its Symmetry line of Unix multiuser systems in an effort to enhance the line as a database server in standalone client/server and mainframe coexistence schemes.

The highlight of the announcement was the expansion of the line's clustering capabilities so that systems in a cluster can share the same database. Previously, they could only share the same storage device.

The new clustering design supports up to four systems, compared with two under Sequent's existing scheme.

Sequent said the two-cluster systems, which will ship in the first quarter of 1993, and three- and four-cluster versions, which will ship in July or August of next year, will run Oracle Corp.'s forthcoming parallel relational database software, Oracle 7.0.

Two-system versions will be based on multiprocessing versions of Intel Corp.'s 50-MHz I486 chip, and the three- and four- box clusters will be based on Intel's forthcoming Pentium chip — the 586. All will run on Sequent's Open Software Foundation (OSF)-type Dynix/ptx Unix operating system, to which the company last week added security features and OSF application programming compliance.

In a key addition to Sequent's clustering capabilities, the company said it will provide its own, rather than Oracle's, manager, which includes fault tolerance.

The firm also added an integrity manager that will switch a user to a different system in the event of a system failure and return the user to an earlier data state.

The Sequent cluster schemes shuttle data between boxes over Ethernet or Fiber Distributed Data Interface media, according to product marketing manager Tejas Vakil.

One Sequent user said clustering should make Unix a more viable platform in commercial environments. Michael Higgins, technology support manager at San Francisco-based clothing manufacturer Byer California, said, "We've reached a fork in the road where you need either two-phase commmit or clusters." He said that clustering is less complicated and safer than using a two-phase commit process.

A two-system cluster consisting of a 6-processor Symmetry 2000/750 and a 4-processor model 250 costs $704,300.

Upgrading logistics apps

CONTINUED FROM PAGE 59

Until June, the warehouse had been managed with a Distribution Management system from GDS & Associates in Portage, Mich. The software, Christiansen said, "was good 20 years ago but was old 15 years ago." The church decided to replace it with a multimodule package from Daly & Wolcott in West Warwick, R.I., "to give us an integrated view of things," he added.

The new software, which runs on an IBM Application System/400, "shows us exactly where everything is and how much is there," Christiansen said.

At Harley-Davidson, Inc. in Milwaukee, "the goal is to be more efficient," said Richard Kolbe, director of MIS. To reach that goal, the firm is installing customer order processing software from American Software, Inc. in Atlanta. It should be in production by the beginning of next year, Kolbe said.

"Now we generate three different reports each day for the pick list, the packing list and address labels. The new system will save three to four hours a day," as well as cut down on errors, Kolbe said.

In contrast, cost-cutting was the basic reason behind the modernization effort at Fieldcrest Cannon's institutional towel division. In August, the company began installing warehouse-management software from Imrex Computer Systems in Great Neck, N.Y. "We're moving inventory from a larger warehouse down to a smaller one in Charlotte, N.C.," said Ken McHenry, manager of information systems at Fieldcrest Cannon in Kannapolis, N.C. "Once the technology has been proven there, we'll expand it to others."

NEW PRODUCTS

System software

Raxco, Inc. has released Version 2.2 of its Security Baseline System software.

The software was designed to locate and report the differences between current system characteristics and site-defined security standards on Digital Equipment Corp. VAX/VMS systems.

The product features the ability to collect baseline reports from remote nodes on a network and then use the reports to generate a consolidated summary report. This report determines which nodes comply with the security policy of an organization.

Prices range from $174 to $11,514.

Raxco
Suite 200
2440 Research Blvd.
Rockville, Md. 20850
(301) 258-2620

Database management

IBM has introduced the IBM SQL Master/VM 1.1, an upgraded productivity tool.

According to the company, the product was designed to help users automate many routines and repetitive tasks. Working with the IBM SQL/Data Systems (SQL/DS) program, IBM SQL Master/VM 1.1 can automate a number of the manual functions needed to support SQL/DS databases within VM/XA, VM/ESA and VM/SP environments.

Improved support of VM and a variety of archiving methodologies are offered in addition to enhanced authorization structures.

Basic license charges range from $75 to $1,555 per month.

IBM
800 N. Frederick Ave.
Gaithersburg, Md. 20879
(301) 240-7277

BMC Software, Inc. has announced Data Migrator, a database management tool.

According to the company, Data Migrator was designed to move IMS data to DB2 tables quickly and easily while maintaining on-line data availability and maximum performance. The entire process of unloading data from IMS is automated by Data Migrator. The product maps the data into DB2, makes image copies and populates tables and indexes.

CPU-level prices start at $10,500.

BMC Software
1 Sugar Creek Center Blvd.
Sugar Land, Texas 77487
(713) 240-8800

Software application packages

Generic Software, Inc. has announced Remdoc, a menu-driven software package designed for the IBM System/36 and Application System/400.

According to the company, users can create up-to-date documentation for RPG and Cobol-based libraries. Remdoc generates copy that can be printed or viewed on 80- to 132-column workstations. The product can simultaneously generate and analyze documentation for up to 30 different user libraries. Features include cross-references, library and member comparisons, screen and print charts and procedure flow charts. A data dictionary facility is also included.

Remdoc costs $1,250.

Generic Software
986 Madison Ave.
Madison, Miss. 39130
(601) 853-1189

SAS Institute, Inc. has started providing transparent access to data stored in IBM Application System/400 databases with the SAS System, the company's information delivery system.

Eliminating the need to create intermediate files, the interface is currently available to users of SAS System running OS/2. A full-screen, menu-driven interface is included for describing AS/400 tables and data to the SAS System. Users can insert, read and upgrade records into AS/400 tables or files, the company reported. Features include native data management capabilities and the ability to store private data libraries on the AS/400.

The first-year license fee for the SAS/Access software begins at $695.

SAS Institute
SAS Campus Drive
Cary, N.C. 27513
(919) 677-8000

Utilities

Megaware, Inc. has introduced MegaPrint, a VAX/VMS system utility.

According to the company, MegaPrint allows Digital Equipment Corp. VAX systems to communicate directly with Hewlett-Packard Co.'s PCL printer language. Users can directly tie HP or HP-compatible printers into their VAX engines with MegaPrint.

The utility is installed as a resident part of the VMS operating system, and it converts the VMS LNO3 format files into PCL commands and sends them to any queue within its command. Text formatting can be produced, and the utility seamlessly integrates with the VMS operating system, which eliminates the need for additional printing steps.

Individual printer licenses start at $349. Site and corporate licenses are also available.

Megaware
Suite 3650
600 W. Cummings Park
Woburn, Mass. 01801

XEROX

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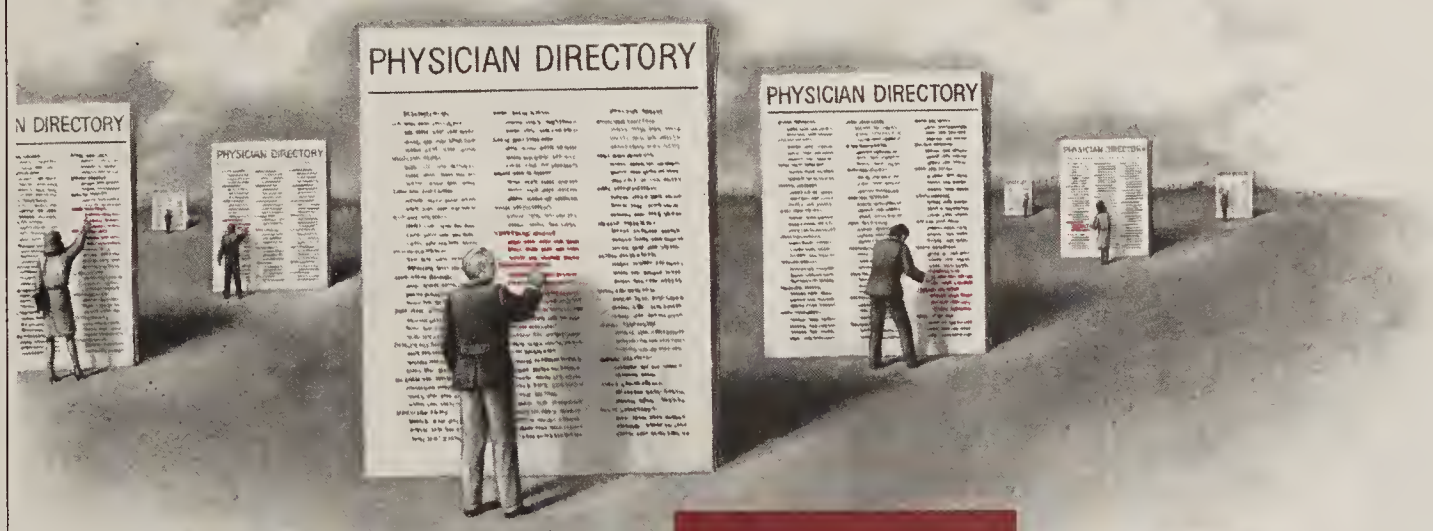

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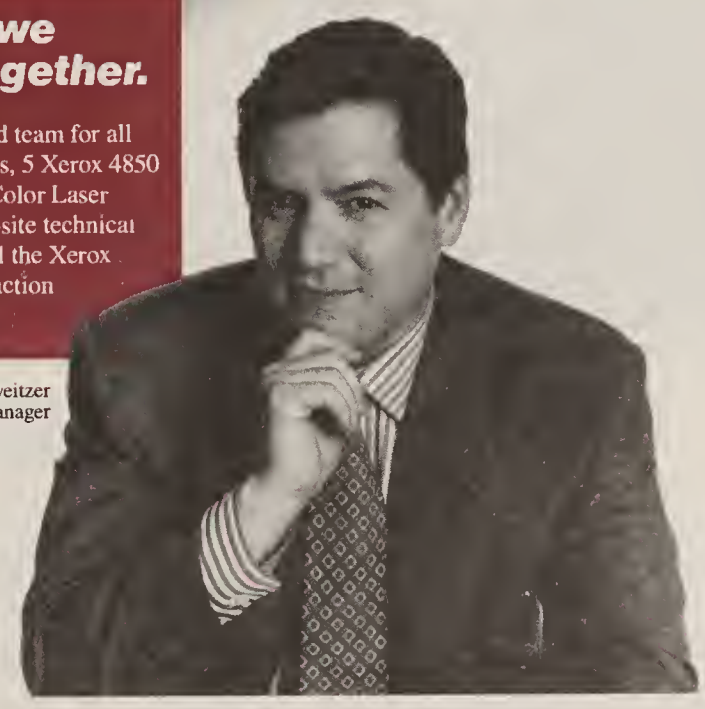

Chuck Schweitzer
National Account Manager

This major insurance company needed to ensure its position in an increasingly competitive marketplace. That meant making customer service a priority. And that's a priority Chuck Schweitzer and a team from Xerox could help them achieve — with the Xerox 4850 HighLight Color Laser Printer.

As the first production-class duplex laser printer to offer highlight color, the 4850 lets them create documents that communicate more effectively. For instance, they can highlight variable data in Provider Directories so customers can find information they need quickly and easily.

It's a service their customers especially appreciate. And the company appreciates how the 4850 is the most cost-effective way to add color to variable data without incurring the prohibitive costs of offset printing. Not to mention the savings they enjoy by eliminating preprinted stock, reducing warehousing costs, and improving turnaround time.

If putting together results like this would stand out in your business, call 1-800-TEAM-XRX, ext. 609B.

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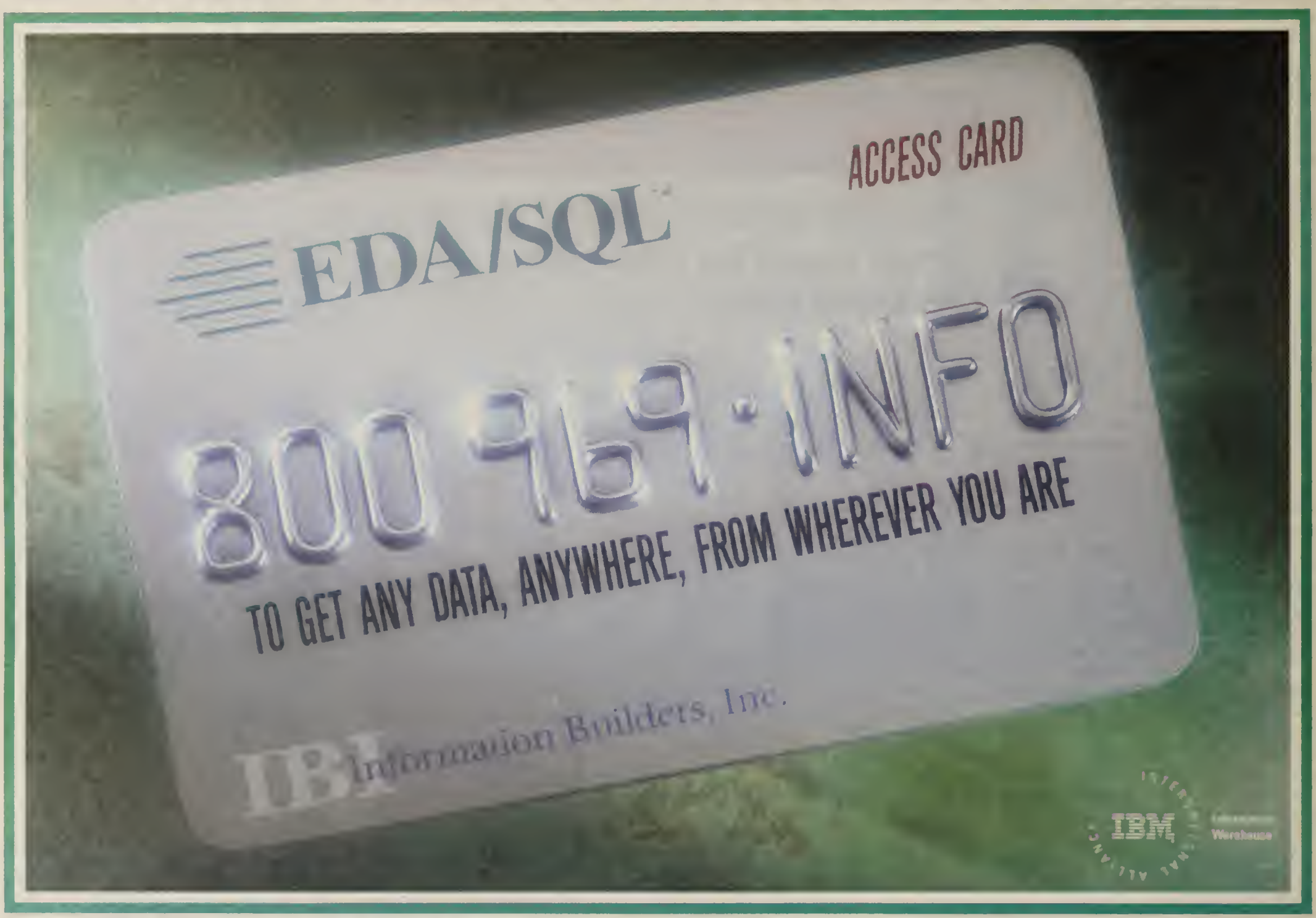

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More than a 'browse' at Phelps Dodge

Application development technology to boost productivity and prepare for client/server

BY GARY H. ANTHES
CW STAFF

PHOENIX — Whoever said mainframes are not user-friendly should take a look at the applications that Phelps Dodge Corp. is developing.

Armed with a mouse, a user can sit at his desk and browse through data in a metals inventory system running on an IBM Enterprise System 9000/440. The user can click on a column heading and sort the contents of that column; enter G* at the top of a list and retrieve all customers whose last names begin with G; select a figure showing inventory in pounds and convert it to metric tons; and drill down in seconds from a year-to-date tonnage figure to a single bill of lading.

"In our system, a browse is not just a browse," boasted Albert Barbieri, database administrator at Phelps Dodge headquarters.

Reusable templates

At the mining and industrial products company, a "browse" is one of 13 "application architecture models" developed to help automate the creation of new applications software. Written entirely in the Natural fourth-generation language (4GL) from Reston, Va.-based Software AG of North America, Inc., the models are predefined, reusable templates for the basic functions — such as browse, help, update, menu and user profile — that are found in most applications.

The models required 15 person-months to develop — a one-time effort that was done as part of the development of the metals inventory system. Using those models and Natural 2.2, Phelps Dodge was able to develop an insurance application with more than 1,000 programs in 90 days. That would have taken at least 15 months using conventional programming approaches, according to Dudley A. McRae, director of corporate information services.

In addition to speeding development, the models ensure that all applications have the same look and feel, McRae said.

ON SITE

Phelps Dodge Corp.
Phoenix

- **Challenge:** To leverage small IS staff to meet user demands for new systems while positioning the company for client/server computing.
- **Technology:** 4GL, application generator and database management software from Software AG.
- **Results:** In one major application, reduced development time from 15 months to three months; mainframe applications can be ported to client/server with minimal effort.

Now Phelps Dodge is poised to take another step forward. It is integrating the models into Software AG's Natural Construct code generator, which comes with some 65 software models of its own. Construct will speed the generation of the custom code that has to be added to the models for each application.

Small world

The company's quest to find faster ways of putting up new applications and overhauling old ones was mandated by a tiny information systems staff — fewer than two dozen application programmers at the corporate level in the $2.5 billion company — that is the legacy of severe cost-cutting in the face of depressed copper prices in the mid-1980s.

"It is self-preservation," said McRae. "Users aren't going to wait two years to do things."

Several acquisitions in Phelps Dodge's mining operations during the 1980s brought with them a number of incompatible computer systems, including, for example, three payroll systems written in four languages. "The company took a look at IS and wasn't too happy with what it saw," McRae said. "I saw that we had no long-term IS strategy. With the staffing we had, we were just keeping the wolves at bay, putting our fingers in holes in the dike because of all the dissimilar systems we had assumed."

With the purchase of the Chino Mines Co. in 1987 from Kennecott Corp., Phelps Dodge picked up Software AG's Natural and the Adabas database management software.

After considering other database alternatives, McRae decided to make those the foundation for the company's rapid application development as well as its approach to client/server computing.

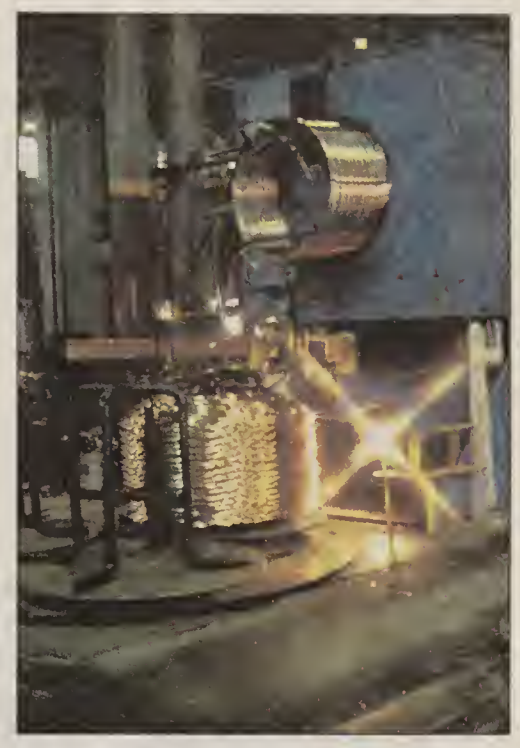
The company cannot go very far toward client/server until next year, when Software AG is due to introduce Natural 2.2 for the major Unix environments.

In the meantime, mainframe applications now going up that use Natural, Construct and Adabas are being written to be fully compatible with a subsequent client/server implementation.

Pieces of the application can be moved to a Unix environment with only minimal effort, McRae said.

The key to making that work is the combination of Natural and Adabas, according to Phelps Dodge. In a distributed environment, additional software from Software AG will transparently intercept application program interface calls and send them to Adabas, regardless of where the program logic and the database are in the network.

"So many people are waiting to go client/server until they have all the pieces, because no [vendor] is really delivering a good client/server implementation environment yet," said Greg Hagen, program marketing manager at Software AG. "But Phelps Dodge is not waiting. When we deliver Natural 2.2 for Unix platforms, they'll be able to take pieces of the mainframe applications and just move them on down."



Metals processor Phelps Dodge *is counting on recycling applications*

Update: NT development

Not a chore — if you already know Windows

BY CHRISTOPHER LINDQUIST
CW STAFF

If your company plans to develop products for Microsoft Corp.'s Windows New Techology (NT) after it ships in the spring, it may be wise to take some advice from some software vendors already caught in the throes of moving to the new operating system. From what several developers are saying, the shift may not be all that traumatic.

"If you know Windows, it's not so bad," said Marc Singer, owner of Straylight Software in Oakland, Calif. Singer ported his Windows-based Razor data analysis tool in about a week. "If you don't know Windows, you have to learn all the Windows stuff first."

"All the Windows stuff" may be a bit of an overstatement, however. According to David Lee, a senior computer scientist at Inference Corp., an object-oriented tools maker, developers no longer have to learn the "stupid programmer tricks" necessary to write Windows code. "Under NT, it's 32 bit, and you don't have to worry about a lot of stupid limitations," such as memory handling, he said.

There are other things to keep in mind, however. One is that corporations may want to run an application on something other than an Intel Corp. platform in the future. "Writing good solid code in a language you can port," such as C, is very important if you want to take advantage of the multiplatform capabilities of NT, Singer said.

That sentiment was shared by Douglas Hamilton, president of Hamilton Laboratories in Wayland, Mass. In fact, Hamilton noted that current versions of the

Continued on page 66

Client/server without the politics is it

BY GARRY RAY
CW STAFF

Talk of downsizing and client/server computing often brings to mind grand, strategic visions and a major rethinking of corporate computing systems. The hidden cost, as many companies have been discovering, is sometimes a significant disruption of existing lines of authority and communication.

In short, client/server sometimes forces a realignment of corporate policies and politics.

But Atlanta's Coca-Cola Enterprises, the administrative and manufacturing arm of Coca-Cola USA, has recently created a number of client/server applications that provide local manufacturing support without the political disruption that often accompanies new business systems.

Heading the effort has been Robert Gordon, an applications planning and development specialist who is just now completing

Continued on page 68

Producing the real thing

Production and materials planning applications are vital keys to just-in-time ordering

CW Chart: Michael Siggins

Slate ships PenApps tool

BY KIM S. NASH
CW STAFF

SCOTTSDALE, Ariz. — Slate Corp. began shipping PenApps Version 1.0 for Windows, an application-building tool for creating programs for pen-based systems.

Aimed at end users and third-party software makers, the product provides reusable objects for weaving pen computing features into new applications.

For example, PenApps lets developers create applications that recognize ink as a data type as well as cursorless operation without coding such options from scratch.

PenApps is available now for Microsoft Corp.'s Windows for Pen Computing operating system, with a version due out for The PenPoint system from Go Corp. in February 1993.

Applications created with PenApps will be portable across multiple pen systems, according to a Slate spokesman.

The product, priced at $995 for a standalone version, includes a screen designer, a database and PenBasic, Slate's programming language.

Single run-time licenses are $49, and unlimited run times are available for $2,995.

Update: NT development

CONTINUED FROM PAGE 65

tools available for writing Windows NT applications were more stable on Mips Computer Systems, Inc. platforms than on Intel platforms, simply because they adhered more stringently to ANSI C standards.

Hamilton ported some 90,000 lines of OS/2 code for his product, the Hamilton C Shell, which recreates a Unix environment, in about three months. For the most part, he said, the move was straightforward, requiring primarily some remapping of application programming interface calls with defined macros and writing some subroutine libraries. "The strategy that was important to us was to recognize that a lot of things are the same except that the names are changed," he said.

If something could not be fixed with either of those techniques, it was time to do some rewriting. However, even in those cases there were advantages when it came time to debug the code. After you recompile, "if the thing doesn't work, it's in the five lines of code you changed," he said. However, for early developers, using the supplied debuggers to find that error can be a harrowing experience.

While Windows NT is very stable, the tools, at least at this point in the beta testing, are not 100% reliable. The biggest weakness seems to be the debuggers. The NT Symbolic Debugger was described as "a throwback" while WINDEBUG, the Windows NT-hosted debugger, is reportedly called "Windbag" inside Microsoft.

"I'm hoping I'll be able to use Posix-type tools," Singer said, noting that the current crop of DOS-bred tools are not built to handle the stresses of developing for Windows NT. And even if the tools work with one version of the beta-test program, they may not with the next.

"The companies that come out with the compilers are not up to speed, so you end up getting a new release of Windows NT but you really can't do anything with it until the compiler companies get their software running on it," said Kathryn Gray, president of GrayTech Software, Inc. "That's something we weren't counting on."

Despite some of the problems, the developers were unanimous in their belief that the move should not be overly difficult.

Developer's checklist

The following are things to think about when you begin writing or porting applications to Windows NT:

- If you plan to port to non-Intel platforms, be sure to write solid, ANSI-compliant C code so recompiling will be easier.
- Porting OS/2 applications can be straightforward using macros and subroutines.
- If you are starting to develop before the final release, be prepared for less than stellar development tools and lags between beta-test shipments of Windows NT and the next release of the tools, particularly from third-party vendors.
- Knowing Windows first helps tremendously in working with NT, but it does not flatten the learning curve entirely. In fact, you may not need to be as skilled a Windows programmer for Windows NT as is necessary for Windows 3.1 because Windows NT removes many barriers with its 32-bit architecture.
- If you plan to port 16-bit Windows applications, the closer they are to being pure Windows 3.1 programs, the easier your port will be.
- It may be a faster process than you expect.

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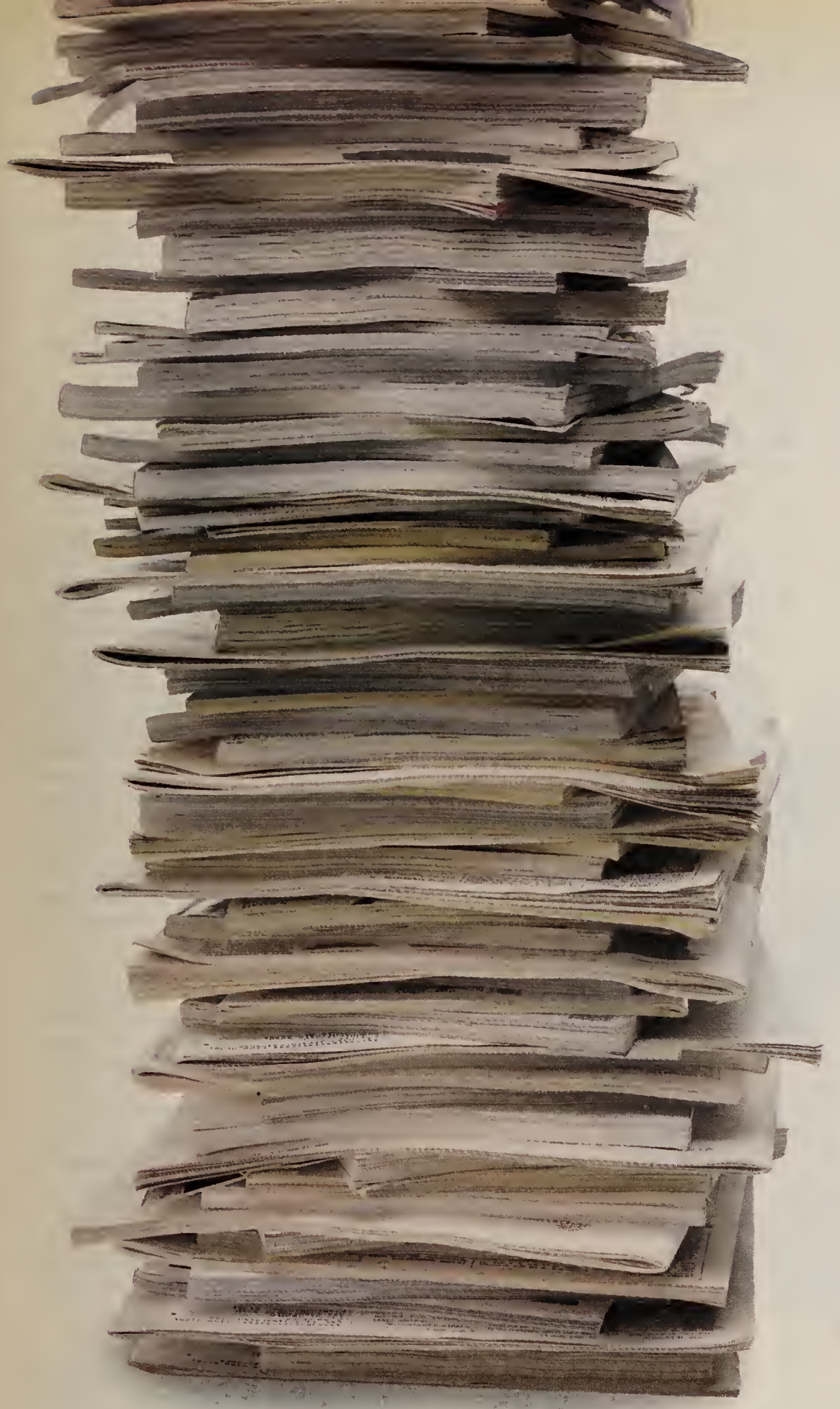

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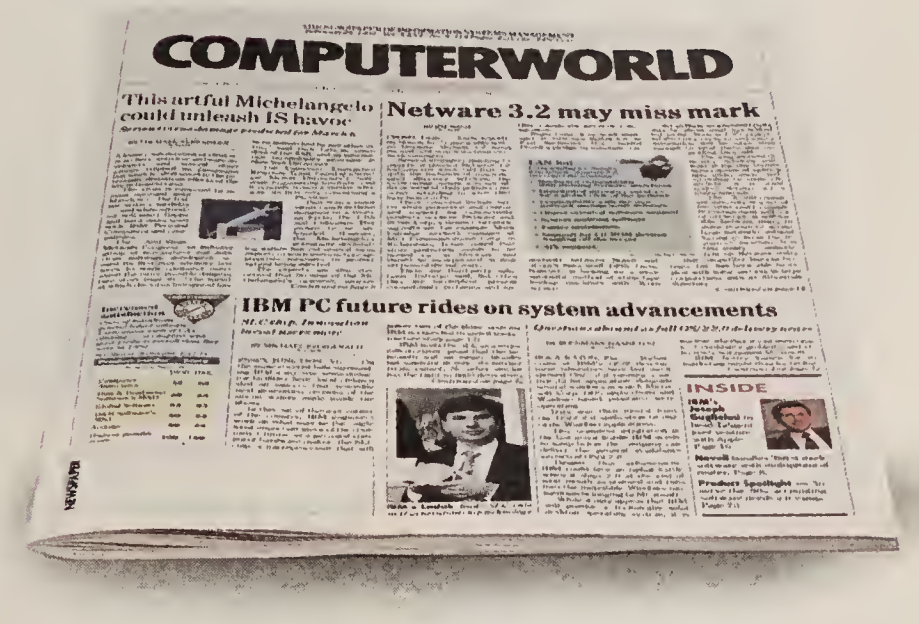

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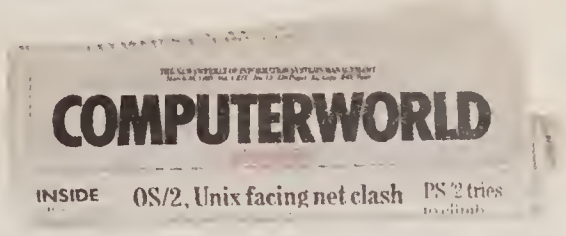

The Newspaper of IS

Client/server without the politics is it

CONTINUED FROM PAGE 65

the second stage of a set of manufacturing planning applications that will be used in more than 40 Coca-Cola plants across the country. Intended to fit with the decentralized structure of Coca-Cola Enterprises, the applications were designed to provide better cost controls and more efficient manufacturing schedules as well as to support the notion of just-in-time delivery by the company's local vendors.

Prior to the applications, "planning was just a guesstimate. Now the production planners know the exact yield they need to produce," Gordon said.

Coca-Cola's decentralized structure provided both the impetus to develop the applications and a clear, guiding force for the implementation of the programs. A prior effort on minicomputer and mainframe systems "wasn't acceptable to users," Gordon said. "People would turn around with what they got from the mainframe, put it in a PC spreadsheet, shuffle it around and print and distribute the reports."

Coca-Cola Enterprises also recognized that local facilities had a better understanding of their own production requirements and what they wanted from the planning software, Gordon said. Thus, the company charged him to develop applications that fit the needs of local facilities.

Partially owned by Coca-Cola USA, Coca-Cola Enterprises provides administrative support for approximately 40 regional facilities. At each facility are a local production planner and a materials estimator, whose functions are to analyze corporate sales and quota projections for the coming week. "We normally plan a week in advance," Gordon said. Once done, the planner and estimator prepare production and materials plans for their local facilities.

Production plans include all of the local resources needed to meet corporate sales plans, including beverage ingredients, packaging and the manufacturing lines that will be run during the week. These plans are then turned over to local warehouse and manufacturing line foremen who prepare for the week's production.

A local materials planner analyzes the sales plans to determine all of the components needed to support the week's production run. Such materials include beverage containers, bottle caps, cartons and the amount of syrups and concentrates used to create a variety of beverages.

Rallying the troops

To create the applications, Gordon first rallied the participation of 12 production planners and business application specialists from six business groups.

The team first selected a set of application tools that included Wall Data's Rumba to download corporate planning reports from mainframe and minicomputer systems; ProtoView Development Corp.'s Protogen 3.0 to develop the query and reporting interface to the applications; Pioneer Software's Q+E to select data from local production databases; and Microsoft Corp.'s Excel for Windows to provide reports. The applications were sewn together to present a seamless interface to users.

The next step, Gordon said, was a four-month prototyping and development effort. "Five users from the College Park [Ga.] facility were involved in the development of the software. There was a lot of prototyping at the production center."

The production application has been delivered to all of the 40 regional facilities. The materials estimating program, which will be used to place local vendor orders on a daily and hourly basis, is being delivered this month.

But from Gordon's perspective, the biggest success of the programs is that they maintain the decentralized focus of Coca-Cola Enterprises and its regional facilities. By localizing the software and stepping away from a mainframe orientation, the regional plants "can continue to manufacture their products, even if they never hear from us."

IN BRIEF

Easel tools now shipping

■ **Easel Corp.**, the Burlington, Mass.-based vendor of application development tools, is now shipping the Easel Transaction Server (ETS) tool kit and the $995 EDA/SQL Option for Easel workbench. The tools provide access to a number of industry-standard database products from within Easel applications. The ETS tool kit will be delivered at no charge to all Easel customers.

■ **Texas Instruments, Inc.** signed up Greenwich, Conn.-based **Ceridian Network Service** to help users learn and deploy TI's CASE workbench. Ceridian forms the base of TI's new Integrated CASE Environment Services (ICES) consulting group, which can also be contracted to handle operations and administrative services associated with software development while users focus on building applications with TI's tools. ICES will also be based in Greenwich.

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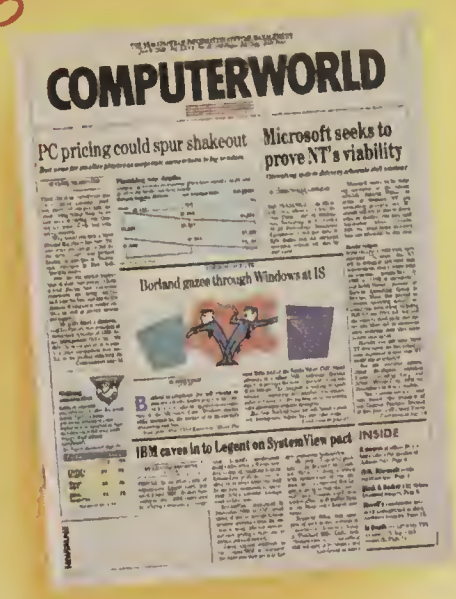

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NEW PRODUCTS

Application development tools

Treehouse Software, Inc. has released Profiler for Natural.

The product is a tool that monitors the execution of a set of Natural programs. It produces statistics that display how often each program is executed and how much CPU time each program consumes. The same information is provided from within a program. The tool can also record the time it takes to complete Adabas calls from within Natural programs.

Profiler offers a range of functions such as identifying problem programs and statements, inappropriate use of external subroutines, inefficient code, poor application structure and design and expensive Adabas access methods.

The introductory price is $12,000.

Treehouse Software
Suite 206
400 Broad St.
Sewickley, Pa. 15143
(412) 741-1677

Set Laboratories, Inc. has announced PC-Metric for C Version 4.0, an upgrade to the company's software measurement and analysis package.

According to the company, the product can help locate especially complex parts of code that are more likely to contain programming errors. Features include IEEE-standard-size counting measures, additional new measures of control flow complexity and a revamped interactive query and analysis system that enables users to track metrics across releases.

A single-user license for Version 4.0 costs $399.

Set Laboratories
26976 S. Highway 213
Mulino, Ore. 97042
(503) 829-7123

Franz, Inc. has introduced Allegro CL/PC, a full-featured object-oriented programming solution.

The product is an interactive development environment for PCs that was designed for Microsoft Corp.'s Windows and based on the Common Lisp Object System. Users can build and maintain applications such as knowledge-based systems, scheduling and process control, computer-aided design, simulation and modeling or any graphical user interface-based system.

The Allegro CL/PC features tools such as a programmable integrated editor, inspector, debugger, tracer and structure editor. Common Graphics, an object-oriented layer on top of the Windows application programming interface, is also featured.

Allegro CL/PC costs $595.

Franz
1995 University Ave.
Berkeley, Calif. 94704
(510) 548-3600

Code libraries

EMS Professional Software has started shipping an expanded version of the dBUtility Library.

The library is a collection of 2,422 public domain and shareware products designed for Xbase languages such as dBase, FoxPro and Clipper.

According to the company, a database index and search program is included for these and 1,000 additional commercial Xbase-related utility programs. Users can search by name, vendor and type.

The dBUtility Library provides more than 70 types of products, including benchmarking, computer-aided software engineering, data compression, desktop publishing and printer control.

The library costs $179 on disk and $99.50 on CD-ROM.

EMS Professional Software
4505 Buckhurst Court
Olney, Md. 20832
(301) 924-3594

TechWorks International has introduced Volume 1 of the TechWorks CDF Library.

The library is a set of 36 ready-to-use Custom Defined Functions (CDF) offering DOS and OS/2 DataEase users the ability to enhance applications.

The SQL Server-access functions enable SQL CDF to retrieve one or multiple values from Microsoft Corp.'s SQL function. This can be done without employing DataEase International, Inc.'s SQL Connect Engine Driver.

From within DataEase, the Array CDF can use the CDF to initialize, load, search and access text and numeric arrays.

Users can open, close and write to multiple DOS and OS/2 files while staying within a DataEase application with the File Access CDF group.

The product costs $179.95

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Assignment: RE-ENGINEERING

It's not academic:

Columbia University is linking up and scaling down in a five-year project that can teach corporations a few things about involving users

Joyce Ravid

Mike Marinaccio: *'We're not here to run a bureaucracy'*

BY MELINDA-CAROL BALLOU

Like many others, Mark Olson wanted distributed computing to help improve the efficiency of services at Columbia University. Instead, Olson, the school's vice president of student financial and information services, faced what he describes as *disintegrated* computing.

"Local PCs were tied in through creative ways to the mainframe," Olson explains. "But it was all undocumented and very fragmented." The result was a patchwork system that relied too heavily on an overworked, batch-oriented IBM mainframe running CICS and Systems Network Architecture, he says.

So two years ago, Columbia, a 238-year-old private institution located in New York, decided that it was time to graduate from a tangle of poorly connected systems, including many that were off-line altogether, to a downsized, client/server environment that includes an IBM Enterprise System/9000 mainframe, RISC System/9000 Unix technology and Transmission Control Protocol/Internet Protocol.

Today, Columbia is halfway through a five-year re-engineering plan that officials say will fundamentally change how business is done at the school's 15 colleges.

The information systems department is made up of 180 members, many of whom are now working to bring several key functions on-line, including accounting, alumni resources, facilities management, human resources and a student information system to handle billing and registration, financial aid, admissions and housing (see chart page 73).

Ballou is a *Computerworld* senior writer.

New technology curriculum

To bring its computing into the next century, Columbia is employing several new tactics and technologies, including short-term outsourcing, a software partnership with American Management Systems, Inc. — the Arlington, Va.-based consultancy working on the project — and a state-of-the-art imaging system that will be rolled out in the financial aid department on Dec. 7. It is also bringing together IS applications directors and end users.

"The system is not viewed as being run by those people over there in the central computing office," says Mike Marinaccio, Columbia's deputy vice president for administrative IS. "They take responsibility for the system, with us supporting them. We're not here to run a bureaucracy."

While higher education is usually not thought of as a hot-bed for re-engineering, Columbia's case points out that colleges and universities need to radically rethink processes and technology as much as anyone — and in some cases more. And their freedom from typical corporate constraints can even add a new twist to business process redesign.

At Columbia, day-to-day business depended on an older mainframe that officials say was heavily modified and very unstable. Marinaccio says a centralized processing structure meant that information was not always accessible from the mainframe, forcing the growth of redundant "shadow" systems.

The result? IS had to maintain both the small-scale redundant systems and the large central organizations, a situation no one liked.

"When I looked at what was going on with those shadow systems," Olson adds, "it wasn't distributed or decentralized computing. It was disintegrated computing."

So IS began to review the human resources available to set up a new organizational structure. American Management was hired to assist and provide software for the student information system via a temporary, six-month outsourcing arrangement. (Columbia and American Management will jointly develop software for the accounting system.)

Olson was hired away from the University of Southern California (USC), where he headed a sim-

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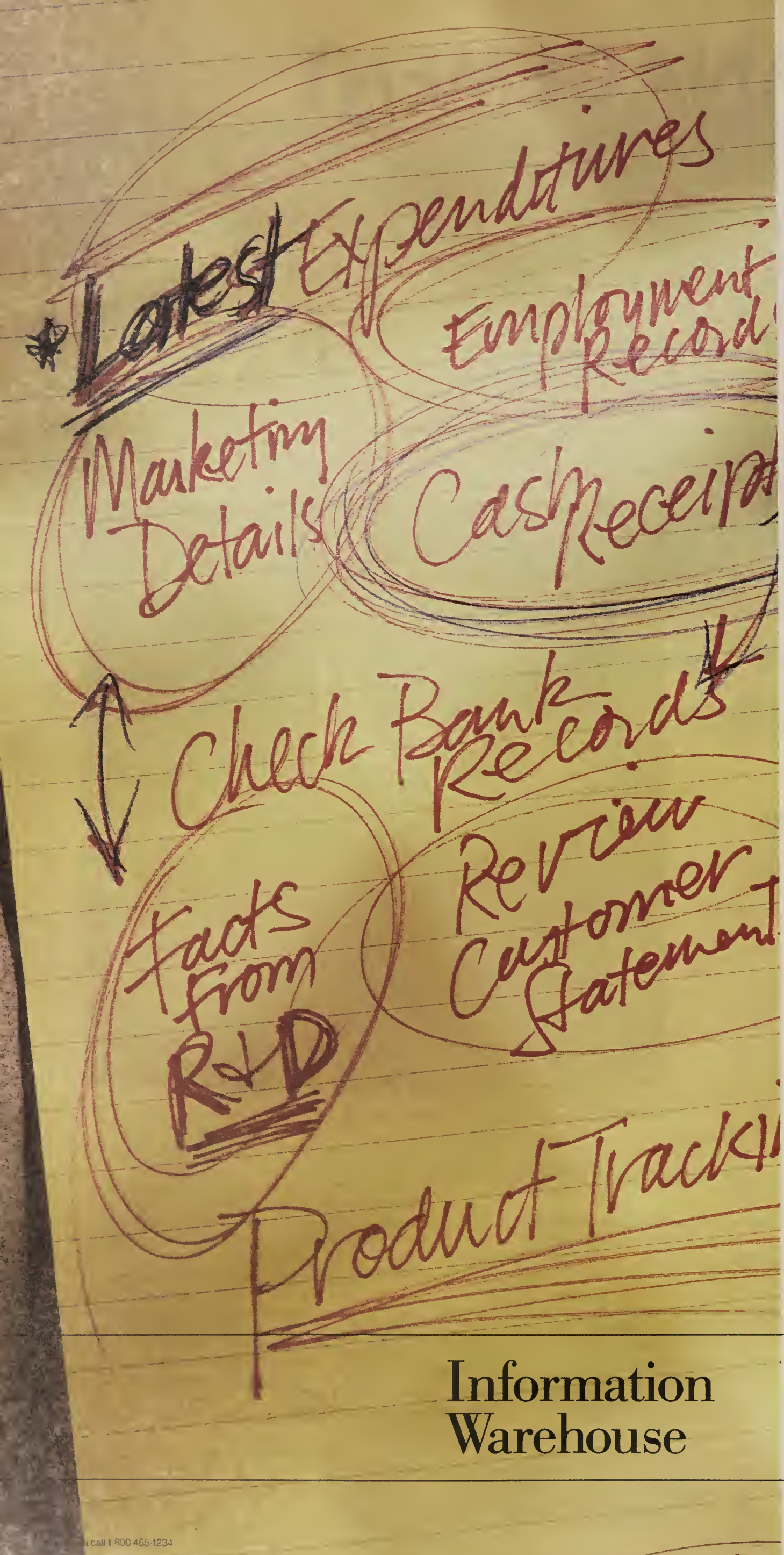

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Re-engineering: Not an academic assignment

CONTINUED FROM PAGE 71

ilar project to create a new student financial and information system.

Meanwhile, Marinaccio was hired to focus on technology infrastructure — networking and the configuration of platforms and applications for business operations.

"We think that it is critical to organize for distributed computing in a distributed fashion," Olson says. "I have responsibility for end-user computing with bursars and others located in my office, for instance."

User ownership

Those in charge of the project realized that users, despite possible benefits, were likely to resist sweeping changes in process or technology. So to foster a sense of ownership, they made it a priority to heavily involve users right from the start — an IS basic that becomes crucial in a re-engineering project.

To that end, Olson worked directly with the student and financial offices to incorporate their requirements. "The users as well as the systems people responsible for this application area report to me — the bursar, the registrar, the financial services director and the systems director for this project are all on the same staff," Olson says. "As organizations implement open systems and client/server, there has to be a concomitant organizational change. Our model offers application support in the end user's office."

Together, they reviewed billing procedures and financial systems, as well as how to set up the imaging program and how financial aid is delivered.

Industry analysts and experienced hands affirm that perhaps more than any other factor, closely involving users can make or break their satisfaction — and the entire project.

"Users are telling MIS that the empowerment they want goes beyond having a PC running shrink-wrapped applications," says John Logan, executive vice president at the Aberdeen Group, a market research firm based in Boston. "They want the ability to dictate [not merely influence] how they do their jobs in the best way."

Olson acknowledges that this requires that both IS and users be willing to accept a major cultural shift and let go of worrying about boundaries. "With distributed computing, you need to do it," he declares.

Fernin Vigil, a controller who worked closely with the IS department at USC, which had tackled a similiar initiative, agrees that there are few better ways to boost user satisfaction than to involve end users in an "iterative" dialogue.

"You can't be rigid and you have to understand what your objective and goal is," he says. "The people who operate the systems have to be happy with them."

Of course, adds Joe Mullinix, senior vice president at Columbia, old-fashioned persuasion plays a big role too. "We avoided telling anyone that they had to unplug anything," he says. "But we eventually convinced [users] that they wanted to."

Starting small

When the requirements analysis was completed, the Columbia teams developed a five-year plan, including smaller segments that could be successfully done to gain further project funding.

"We painted a pretty comprehensive picture," Marinaccio says, "making sure that we can create a good business case for each of the pieces."

The student information systems project went into full-swing in March 1991. By last December, all 15 colleges at Columbia began billing nearly 20,000 students on the new system.

The job required the conversion of about 130,000 student records, 6,000 course records and 400 detailed billing records from the old system.

"We still have a long way to go," Mullinix says. "But up front we decided to dramatically improve our billing system as a top priority."

Payoffs seen

Although the project is only about half completed, Columbia officials say there have already been several benefits.

Now, for example, students no longer have to wait in long lines at a central gymnasium to register. Instead, they can simply go to one of four sites and register online; dial-up registration is planned for the future.

Financial aid has also improved, Olson says. "In the past, the financial aid forms from families would go to the financial aid office. Now the forms will go to central processing, which reports to me. We will make images of the forms."

The new arrangment, Olson says, will give financial aid advisers more time to counsel students rather than chasing paper.

The imaging program goes live early next month for the financial aid office. Electronic file folders will be created for applicants and will become accessible by next February — a relatively fast turnaround that Mullinix says is necessary to keep user interest and trust high.

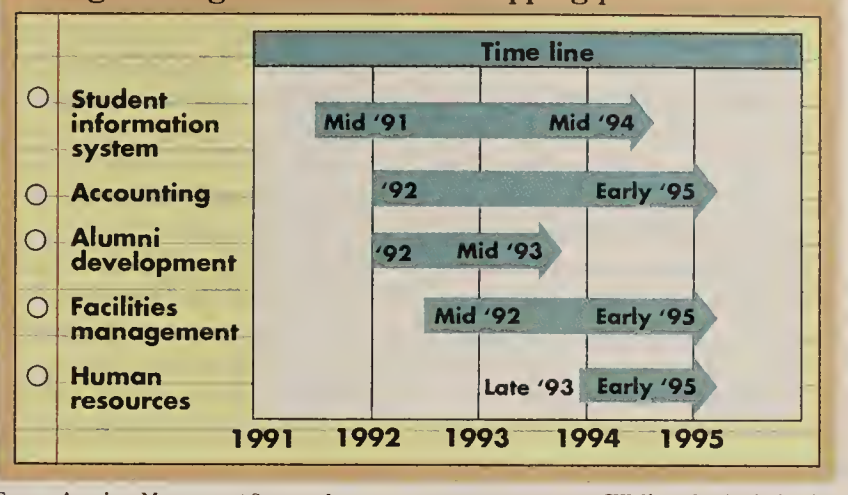
"You have to move very quickly to get the product out into the community," he says. 'The overall plan may take years, but they need to see some sort of results within 12 to 18 months."

Other portions of the plan will be implemented from now through 1995 (see chart at left). For now, technological work continues. Workers are now considering distributed data management using Sybase, Inc. equipment together with DB2 across multiple enviroments.

Besides keeping up a tight partnership with user departments, Mullinix says, the teams will make sure they don't lose sight of the forest just to please.

"You don't have to have all the pieces precisely defined," he concludes, "but you need to have a conceptual vision that you can keep your eye on, or you tend to lose your way along the route and end up with a product that doesn't meet your objectives." •

The five-year plan: Columbia University's re-engineering involves five overlapping phases



Source: American Management Systems, Inc. CW Chart: Stephanie Faucher

The homework: A number of systems must be created

- **Facilities management system**
  Comprehensive support for facilities functions including operations and maintenance; design and construction; and space and equipment.
- **Image-based financial aid system**
  Folder management and work-flow processing for paper-intensive process.
- **Research system**
  Unix-based; designed to streamline all facets of sponsored research acquisition and administration.
- **Decision support system**
  Designed to provide access to information that crosses old and new administrative systems.

Source: AMS, Inc. CW Chart: Stephanie Faucher

The syllabus: Multifaceted goals underly work with consultant AMS

- **Strategic systems planning**
  Build framework for five-year replacement of administrative systems and evolution to open systems.
- **Implement AMS Legend applications**
  Financial package is cornerstone of five-year plan; implemented in 1991.
- **Develop administrative information architecture**
  AMS and Columbia jointly develop enterprisewide information architecture.
- **Create systems strategy**
  Jointly build and migrate applications to open environment.
- **Develop new applications**
  Jointly build new products and extensions to existing projects.
- **Implement imaging technologies to improve business processes**
  Co-develop financial aid imaging applications. Goal is to establish single center to serve 15 financial aid offices.

Source: AMS, Inc. CW Chart: Stephanie Faucher

Canion warns re-engineers: Beware of outsourcing dangers

BY MARK HALPER

HOUSTON — While outsourcing vendors may provide the right solution for some information systems challenges, they should not be entrusted with ultimate IS responsibility, according to former Compaq Computer Corp. Chief Executive Officer Rod Canion.

Canion, who is chairman of Insource Management Group, Inc., an IS consultancy that he co-founded in June with former Electronic Data Systems Corp. and Perot Systems Corp. executives, says he views outsourcing as just one possible element in a re-engineering scheme.

"We are not against the component of outsourcing," Canion said in a recent interview with *Computerworld*. "What we are against is for the outsourcer to be in charge of information systems. There is a fundamental conflict in that the outsourcer runs the system and is paid by transactions that flow through it," Canion observed.

Rod Canion *cites outsourcing pitfalls*

Good bets for outsourcing

Canion said it makes more sense to outsource some functions than others.

For instance, banks could outsource "commodity functions" such as check clearing while keeping IS support of their differentiated services in house, he said.

Meanwhile, Insource Management has added another former outsourcing executive to its ranks.

Charles Biebighauser, who was vice president of operations for the Intrico travel industry consortium, which oversaw the now-defunct Confirm reservation system project, has signed on as a principal. He started Nov. 2.

Biebighauser, also an EDS veteran, will be responsible for business development and "helping to define our strategy," acording to Canion. He reports to CEO Ron Fischer, a former EDS and Perot executive, and joins a staff that includes Perot co-founder Gary Wright.

Biebighauser characterized the re-engineering business as "a less greedy approach" than outsourcing and one that "in three to five years will be as big a business as outsourcing."

Ergonomics: Early fixes

BY MITCH BETTS
CW STAFF

MELVILLE, N.Y. — Even enlightened managers who want to relieve the aches and pains of intensive keyboard work may balk at spending $10,000 for ergonomics consultants. But a new service from Biomechanics Corp. of America makes getting an ergonomics report card much more affordable.

Biomechanics recently introduced a service dubbed Early, for Ergonomic Assessment of Risk and Liability, that helps employers of all sizes to identify repetitive stress problems and solutions. In essence, the service allows company employees or local contractors to collect the relevant data and send it to the company's ergonomists for expert laboratory analysis.

An Early report costs about $300 for a job category, such as data entry clerk.

"To have a team of ergonomists fly out and conduct ergonomic assessments would be cost-prohibitive — over $10,000 when you include travel expenses, time and everything," said Andrew Ellis, senior loss-control consultant at Tokio Marine Management, Inc., a Pasadena, Calif.-based insurance firm.

Biomechanics is recruiting a network of occupational health professionals across the country who are trained to do the data-collection work.

The relevant data includes company statistics on health problems, a videotape of typical work activities, an employee survey on physical stress and, most importantly, actual measurements of muscle tension registered by an ergometer supplied by Biomechanics.

Other benefits

Besides low cost, the other advantage of the Early system is that it produces some hard data, Ellis said. "Traditionally, workstation assessments have been rather subjective. The Early system is a much more standardized and formal approach that leads to a quantitative assessment," he added.

About seven days after getting the data-collection forms and other information, the Biomechanics laboratory produces a detailed report that identifies problems and offers solutions.

For example, at one company, there was not enough room above a computer monitor for proper height adjustment because of the office's overhead flipper door cabinets. In addition, the worker's chair did not provide arm support for keyboard work.

These observations coincided with high measured levels of muscle stress on the left hand and wrist, as well as the back. The report, citing specific manufacturers' products, recommended an adjustable monitor arm and an adjustable task chair with armrests.

The emergence of Biomechanics' Early service comes at a time when the U.S. has experienced a tenfold increase in repetitive stress injuries in white-collar jobs during the past five years [CW, Sept. 21].

Ideally, the Early reports will help companies identify problems and solve them before they result in injury claims, according to Chris Maynard, director of ergonomic programs at Biomechanics.

The Early reports draw from a database full of scientific literature and thousands of ergonomic studies, Maynard said.

EXECUTIVE TRACK

James L. Bradley has been named vice president at New York-based information management consulting firm **Howard Systems International, Inc.** Bradley comes to Howard Systems following 25 years at Aetna Life & Casualty Co., where he most recently served as vice president of telecommunications.

In his new post, he will head up and expand the firm's "insourcing" program, under which Howard information systems professionals are placed in client organizations to lead internal IS initiatives.

. . . . . .

At the **Indian Health Service** in Rockville, Md., **Richard M. Church** was recently named to the post of associate director of the office of information resources management.

Church, a 20-year veteran of the **United States Public Health Service** (PHS), recently completed a four-year term as the PHS' chief professional officer for pharmacy, a job he held in addition to that of chief pharmacist at the Indian Health Service.

He is a winner of the Surgeon General's Medallion, the highest honor given by the U.S. Surgeon General.

. . . . . .

There's extra spice in **C. Robert Miller**'s life these days: The former IS director of Sparks, Md.-based **McCormick & Co.**'s flavor division has been named vice president of IS at the company he has served since 1967.

Miller will have worldwide responsibility for the integration of information technology into the seasonings company's business plans.

. . . . . .

The Rockefeller University has announced the appointment of **Francis (Frank) Lees** as its new director of information and computing services — the New York-based university's highest IS position, equated to that of a chief information officer.

Lees comes to Rockefeller from the **State University of New York** at Albany, where he was an associate professor of bioanthropology as well as associate vice president of IS and technology.

In his new post, he will spearhead Rockefeller's effort to streamline and consolidate four current IS-related departments into a single information center.

This is the company you see in your rear-view mirror,

lights flashing,

passing the pack,

shouting client-server computing.

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Items of interest from publications, speeches, surveys and research projects

To pilot or not

The conventional wisdom is that companies interested in imaging systems should begin with a small pilot demonstration.

But Ron Landers, director of expenditure accounting at Pizza Hut, Inc., argues that pilots are too expensive and disruptive for their meager benefits. Instead, he says companies should do considerable up-front analysis and then take the imaging plunge.

"In the world of image processing, we are far beyond the tire-kicking stage. It's time to buy the car," he says.

In a counterpoint article, consultant Len Yencharis argues that imaging pilots in departmental applications can provide the evidence needed to cost-justify enterprisewide applications in the future.

Source: *"Are pilot installations necessary for successful imaging systems?" by Ron Landers and Len Yencharis,* Imaging World, *September 1992.*

To the back office

Traditionally, companies have focused on the quality of their products and have tried to improve customer service by beefing up the sales force. Today, progressive companies are learning that investing in "administrative quality" in the back office is equally important.

Back-office problems that generate invoices with the incorrect price or deliver the wrong goods can ruin customer relations and cause considerable internal disruption.

Where to concentrate remedial effort? Lines of communications between sales, inventory and accounting departments.

Source: *"Cleaning Up The Back Office," by Christopher A. Bielenberg, Directors & Boards, Summer 1992.*

Tips for targeted marketing

If you've built a customer database for targeted marketing, how can you use it to market smarter? Here are three ideas:

- Assign customers a unique identification number, or use Caller ID, so customer service representatives can quickly retrieve the customer's computer file and provide customized service on the phone.
- Ask every 10th caller a few questions about the current product line and future products or incentives. Enter this polling data into the customer database and analyze the trends.
- Use the database to generate repeat orders. For example, mail reminders to your customers that they may want to reorder or upgrade the holiday gifts they ordered last year.

Source: *"Three Ideas for Smarter Marketing," by David Shepard and George Orme,* DM News, *Sept. 21, 1992.*

Rock 'n roll server

"Implementing client/server is like guitar-playing," says Fred Wingograd, vice president of distributed applications planning at Merrill Lynch & Co. and former rock band member. "You learn a few chords, you get something done, and you evolve from there."

Source: *Remarks made at the annual "CIO Perspectives" conference Oct. 11 to 14 in Boca Raton, Fla.*

Compiled by national correspondent Mitch Betts, with contributions from Joanne Kelleher, features editor, and James Daly, senior correspondent.

CALENDAR

NOV. 22-28

Openforum '92. Utrecht, The Netherlands, Nov. 23-27 — Contact: Uniforum, Santa Clara, Calif. (408) 986-8840.

NOV. 29-DEC. 5

Technical Marketing 2000: Opportunities and Strategies far a Changing Warld. Washington, D.C., Nov. 30-Dec. 1 — Contact: Technical Marketing Society of America, Torrance, Calif. (310) 534-3922.

Eurapean Canference an Hypertext '92. Milan, Italy. Nov. 30-Dec. 4 — Contact: Association for Computing Machinery, New York, N.Y. (212) 869-7440.

Cause '92. Dallas, Dec. 1-4 — Contact: Cause, Boulder, Colo. (303) 449-4430.

The Open O/S Canference. San Francisco, Dec. 2-3 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

EO/IR Sensars Seminar. Orlando, Fla., Dec. 2-4 — Contact: Advanced Technology International, Dept. EO/IR, Washington, D.C. (202) 223-8840.

Impraving Emplayee Perfarmance Using Technalagy. New York, Dec. 2-4 — Contact: BIS Strategic Decisions, Norwell, Mass. (617) 982-9500.

Carparate Infarmatian Management Canference (CIM). San Diego, Dec. 3 — Contact: Susan Miguel, IMS, Tiverton, R.I. (401) 683-5760.

Enviranmental Marketing and Cantracting Canference. Washington, D.C., Dec. 3-4 — Contact: Technical Marketing Society of America, Torrance, Calif. (310) 534-3922.

14th ACM Sympasium an Operating Systems Principles. Asheville, N.C., Dec. 5-8 — Contact: Association for Computing Machinery, New York, N.Y. (212) 869-7440.

The Migratian ta Client/Server Camputing. Dallas, Dec. 3 — Contact: Infomart, Dallas, Texas (214) 746-3500.

DEC. 6 - DEC. 12

Saftware Suppart '92. Monterey, Calif., Dec. 6-9 — Contact: United Publications, Inc., Yarmouth, Maine (207) 846-0600.

Supparting and Traubleshaating Windaws 3.1 Seminar. Seattle, Dec. 7-8 — Contact: Data-Tech Institute, Clifton, N.J. (201) 478-5400.

Wireless Datacam '92 Expasitian and Canference. Boston, Dec. 7-9 — Contact: Communication Events, Norwalk, Conn. (203) 847-5131.

Computer Measurement Graup (CMG) '92. Reno, Nev., Dec. 7-11 — Contact: CMG '92, Department 77-5105, Chicago, Ill. (312) 527-6652.

Image Warld Atlanta. Atlanta, Dec. 7-11 — Contact: Benita Roumanis, Knowledge Industry Publications, Inc., White Plains, N.Y. (914) 328-9157.

The 1992 Federal Camputer Conference. Washington, D.C., Dec. 8-10 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

May we introduce ourselves?

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We are the only UNIX-based computer company that can offer compatible, scalable chip technology for notebook computers to supercomputers, with SPARC® and Solaris® operating enviornment.

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And that's just the view from *our* rear-view mirror. To find out how you can lower your computing costs while raising productivity, call 1-800-426-5321, ext. 500. And ask to see where client-server computing is headed.

Sun

Sun Microsystems Computer Corporation
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A family of massive, yet peaceful, creatures quietly patrols its limited home range. With few natural enemies, black rhinos prowl with an air of confidence and command. Their mission for the day is identical to the billions of days that came before: to roam and graze and reproduce and rear their young to continue the species.

At a distance just beyond the black rhino's keen senses of smell and hearing, another species lies in ambush.

Automatic weapons are loaded. The targets acquired. The triggers pulled. Soon after the horns of their prey are removed, wallets of poachers swell.

EXTINCTION IS A HIGH PRICE TO PAY FOR A NIGHT ON THE TOWN.

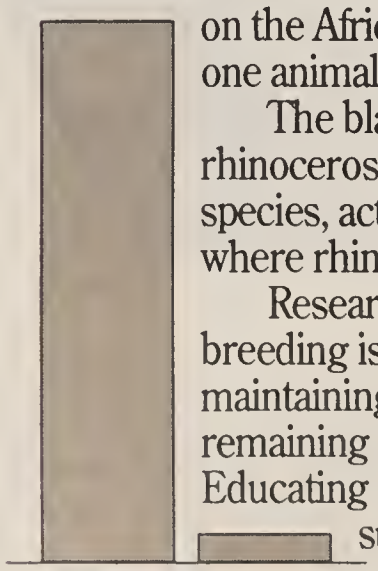
Today on the African plain, a magnificent animal will be slaughtered in order to provide a psychological lift for someone living thousands of miles away.

When ground, the horns of the black rhinoceros are reputed to be a strong aphrodisiac. Powdered, the horns are alleged to be potent medicine. Carved, black rhino horns make handsome handles for daggers.

As poachers supply the demand for horns, the black rhino is vanishing. Every dehorned carcass left on the African landscape brings the species one animal closer to extinction.

The black market for horns of the black rhinoceros is flourishing. To save the dying species, action is now required in the fields where rhinos dwell.

Research into black rhino behavior and breeding is very important. Establishing and maintaining areas of safe refuge for the few remaining members of the species is critical. Educating individuals and seeking their support has never been more vital.



Since 1977, more than 95% of the black rhino population has been lost, along with the lives of scores of human defenders.

The bottom line, however, is that unless the poachers are stopped there will soon be no living black rhinos left in the wild to study, support, or safeguard.

While our mission includes support for research, education, and habitats, our focus is to stop the tragedy of killing black rhinos for their horns.

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From art *to* part

Marty Braun

Desktop manufacturing lets companies transform CAD data directly into parts and models without ever going to a machine shop. The benefit? Up to a 95% reduction in costs and time to market.

By Anil (Neil) Chaudhry

Day 1
noon

A product idea gels. An engineer at a large automotive company and a customer support manager are in the last of a string of lunch meetings to discuss the engineer's new idea for a distributor cap design. His co-worker confirms that the part has been giving customers trouble and needs improving.

The engineer gathers his paperwork, including customer input, and takes the idea to his boss, who approves it.

Day 1
1:30 p.m.

Collaboration. The product engineer takes his scribbled drawing to the computer-aided design (CAD) expert in the design department. They roll up their sleeves and begin to hack out the design for a three-dimensional solid CAD model.

Day 2
5 p.m.

A journey. The CAD model is finished. The product engineer sends the computer image to a desktop manufacturing machine with the click of a mouse.

Day 2
5 p.m.— 8 a.m.

Machines take over. The desktop manufacturing equipment translates the detailed design information into a series of precise 2-D cross-sections of the part.

The machine feeds the cross-section data into a computer-controlled ultraviolet laser beam, which scans the surface of a vat of liquid photopolymer.

The photopolymer hardens into a solid layer of plastic when light hits it. A computer-controlled elevator system lowers the hardened layer. The surface is recoated and leveled.

The laser scans and solidifies the next layer. Layers are built on top of one another until the part is complete.

Day 3
8 a.m.

The real thing. A technician lifts the object from the liquid, cleans the excess polymer, cures it in minutes and hands it to the product engineer and designer to analyze.

Day 3
9 a.m.

Making the rounds. The design engineer presents the new design to managers in marketing, customer support and production.

They suggest minor modifications to improve the design and minimize costs. Engineers rework the CAD drawings and resend the design through the desktop manufacturing process.

Day 4
9 a.m.

Success. The new product is approved. The company orders molds so it can manufacture several dozen prototype production parts for qualification testing.

The company has successfully launched a new product.

The process just described, known as desktop manufacturing or rapid prototyping, is being repeated in manufacturing companies worldwide. With an average investment of $300,000 to $500,000, companies can quickly transform CAD drawings into parts and models as big as 20 in. by 20 in. by 30 in. without ever going to a machine shop or machining a tool. The benefit is a 30% to 95% reduction in development cycle time and cost.

Designing a new product has always been a creative but slow process, requiring several iterations to fine-tune a part. Designers need to check with peers, technicians and shop-floor engineers to approve a design. If a change is needed, the process starts all over again; blueprints need redrawing and shop-floor machines resetting.

Each iteration increases the developmental cost of the product and increases the time required to bring a new product to market. That's why catching problems and making adjustments early in the cycle — things desktop manufacturing lets you do — can save hundreds of thousands of dollars.

Whether the computer-controlled process involves a laser that hardens photosensitive liquid into a part or heat that fuses fine powders into shapes, desktop manufacturing techniques are improving the economics of getting products to market faster.

A select group

The list of desktop manufacturing users isn't long, but it is illustrious. Nearly all the major automakers — General Motors Corp.,

Continued on page 78

INSIDE

Descriptions of various desktop manufacturing techniques, including their advantages and disadvantages. **Page 81.**

Computer systems and cost specifics. **Page 78.**

Continued from page 77

Ford Motor Co., Toyota Motor Corp., BMW of North America, Inc. — have signed on, as have aerospace giants The Boeing Co., General Electric Co. and Pratt & Whitney. The technology, commercialized in 1987, is also making its mark in tooling companies — those organizations that create molds, dies, punches and other items used to make production parts.

Organizations are using desktop manufacturing to make prototype parts as well as to create models for testing and for in-house or client critiques.

For Aluminum Company of America (Alcoa), Chrysler Corp. and Ford, desktop manufacturing techniques are key to quickly producing prototypes for review. They can check the models for fit, form and function, making changes to the design as needed — before any huge manufacturing effort gets under way.

Alcoa has trimmed its manufacturing review process from two to three weeks down to two to three days and has also minimized mistakes caused by misinterpretations of manual drawings and prints and miscommunication of design details, says Paul Fussell, who is responsible for Alcoa's rapid prototyping program.

Ford's goal is "to do the up-front work to get better quality in the part," according to Tony Anderson, the senior research and development engineer who oversees the technology at Ford. "We do analysis on the model to verify part properties and optimize properties before a single prototype is built." Only when the CAD model is satisfactory does Ford use it to make tools.

Proving that a design is manufacturing-worthy is one of the ways Chrysler makes use of its $500,000 desktop manufacturing system. By turning its CAD models into prototype parts, the company checks ideas for diesel starter motors, automotive transmission shifter handles, seat belt turn loops and distributor caps.

The company also tests its prototypes under simulated operating conditions. Chrysler part designers and product development engineers tested the Viper's equipment in this way. The automaker has also tested desktop-manufactured parts alongside and sometimes in place of production components. Chrysler says its investment has had a payback of less than one year in cost and time savings.

Fashioning models

Perhaps one of the greatest beneficiaries of desktop manufacturing is the tooling industry, which creates molds and other items used to make production parts.

For most companies, machining a rough bar stock (chunks of solid metal) to make molds, dies or other tools is costly and requires long lead times (several weeks to months). The process is hard to justify, especially in the case of intricate geometric parts and for relatively small lot production runs. Desktop manufacturing systems, on the other hand, enable users to generate prototype tooling rapidly.

Tooling is generated primarily in two ways: one, by using a prototype part as a pattern to make "soft-tooling" (i.e., rubber, epoxy, polymer-based molds); and two, by generating a prototype as a pattern to make "hard-tooling" (i.e., investment cast metal molds).

Another option is emerging from the laboratories at MIT, which are developing a rapid prototyping system called Three Dimensional Printing, which can make ceramic molds directly from the prototyping machine. The ceramic molds can then be used for casting metal parts.

Product development engineers use these desktop manufactured tools to produce actual parts made not of rapid prototype materials (such as photopolymers, wax, paper, etc.) but of real materials (such as polyethylene, aluminum, copper, etc).

Mack Industries, Inc. in Troy, Mich., which specializes in molding parts, building patterns and producing prototype castings, is using a desktop manufacturing method to make models quickly. These models are in turn used for building molds to cast actual parts. According to the company, the time it takes to build a woodlike model using desktop manufacturing vs. conventional techniques has been reduced by days or weeks.

For example, Mack had to supply a front-end accessory drive bracket for a major automotive company and used a desktop manufacturing system to create a 3-D solid model from CAD data. The system in this case reduced the total project time by 34% compared with conventional pattern-making methods. Futhermore, the system can run unattended, except for setup.

Breaking the mold

Other tooling companies are aggressively using rapid prototyping systems not just to provide prototype parts but also to produce a variety of tools for casting, forming and injection-molding applications.

Alpha Mold, Inc. in Dayton, Ohio, for instance, is integrating desktop manufacturing technology with computer-aided design and manufacturing and metal machining equipment to build molds. "A stereolithography model allows the customer to see the part and determine if any changes are required before expensive tooling is started," says Bob Burgess, sales/marketing engineer. (Stereolithography is the process of creating a part layer by layer in a vat of photocurable liquid. See story page 81.)

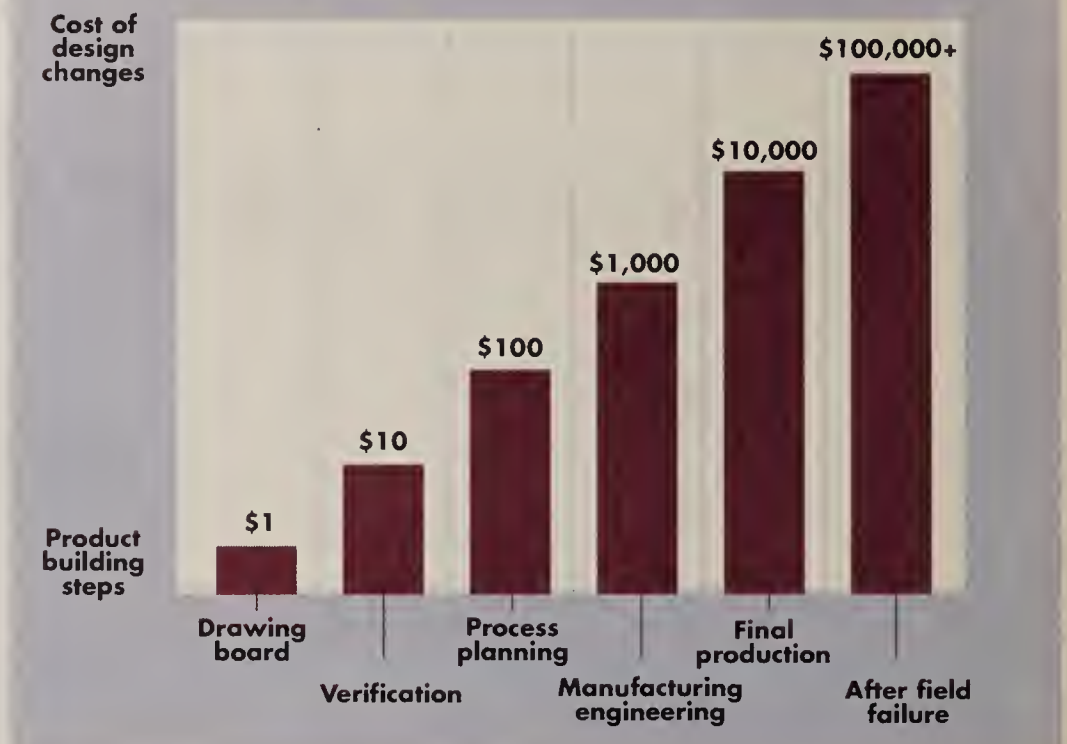
According to Burgess, Alpha Mold recently completed a project for The Regina Co., the manufacturer of the Electrik-Broom line of vacuum cleaners. Alpha built a part from CAD data to check form and fit before making a final product design decision. Once the design was approved, Alpha was able to use the part as a pattern to create urethane duplicates.

Regina "improved product quality, reduced lead times, as well as lowered overall costs," Burgess says. The company cut the time it takes to make the machine prototype mold by six weeks, he adds. •

Chaudhry is technical transfer manager at the Edison Materials Technology Center in Dayton, Ohio.

Avoid costly mistakes

Using desktop manufacturing techniques, design changes can be made earlier in the cycle (during verification) when they are less expensive



Source: Edison Materials Technology Center

Vital stats

What's needed and what it costs to make desktop manufacturing fly

Desktop manufacturing system	Computer system	Approximate equipment cost
Stereolithography (SLA-500) by 3D Systems, Inc.	386-based controller; Silicon Graphics Unix-based slicing software; STL input format (a de facto standard)	**$385,000**
Solid base curing (Solider 5600) by Cubital America, Inc.	Vaxstation 3100; input from solid models; surface models, wire-frame models; 2-D drawing (semi-automatic); computer-aided tomography and magnetic resonance imaging scanners; stereochemical models; digital terrain models	**$490,000**
Laminated object manufacturing (LOM 2030) by Helisys, Inc.	386-based IBM-compatible; MS-DOS 3.3 and Microsoft Windows 3.0; STL input format	**$140,000**
Selective laser sintering (Sinterstation 2000) by DTM Corp.	386 microcomputer running Unix; STL input format (486 with GUI used in latest models)	**$397,000 - $427,000**
Fused deposition modeling by Stratasys, Inc.	Initial Graphics Exchange Specification format; numerical control program code; STL format; Unix-based slicing software; 3-D wire-frame CAD model; (Silicon Graphics Iris workstation optional)	**$130,000 - $183,000**

Source: Edison Materials Technology Center

Technically speaking

The Edison Materials Technology Center, a materials and processing consortium based in Dayton, Ohio, has joined with key manufacturing companies, the University of Dayton's Rapid Prototyping Development Laboratory and Carnegie Mellon University in Pittsburgh to study the technical side of desktop manufacturing.

Their work concentrates on the development and improvement of desktop manufacturing software, the property and behavior of materials exposed to ultraviolet lasers and laser scanner control using desktop manufacturing techniques to make prototype tooling quickly.

Computer technology developments include the following:

•**The Rapid Prototyping Tool Language (RPTL).** One of the major challenges facing software developers working to improve rapid prototyping systems is in simplifying and streamlining the steps involved in converting CAD data into a 3-D part.

In current systems, the 3-D CAD model must be faceted, sliced and then merged to create a control data file used to fabricate a solid object. In an RPTL-based system, the control unit compiles/interprets the input programs (which carry the layer boundary and laser movement information generated either by a human programmer or a CAD/CAM system) to build the solid part layer by layer.

Thus, RPTL replaces the existing data conversion process with a single program control step. Eliminating intermediate steps reduces the potential for errors.

•**Stereolithographic Apparatus (SLA) Previewer/Editor software package.** Users of SLA technology (which creates parts layer by layer when photocurable liquid gets hit by a laser beam) can view and edit input files before CAD data is merged and the part built.

Because this enables CAD engineers to catch software errors, such as stray vectors or incorrect lines, companies can reduce time-consuming, costly and repetitive part-building steps.

COMPUTERWORLD

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Cabletron	12%	Cabletron	13%	Synoptics	13%	Synoptics	13%	Synoptics	9%
Cisco	12%	3Com	9%	3Com	9%	Cabletron	11%	Cabletron	8%
3Com	10%	Brightwork	8%	Cisco	7%	Timeplex	9%	Proteon	8%
Proteon	7%	Proteon	8%	Timeplex	7%	Proteon	7%	Cisco	6%
Racal-Datacom Inc.	6%	Racal-Datacom Inc.	8%	Racal-Datacom Inc.	6%	Racal-Datacom Inc.	7%	Brightwork	5%
Timeplex	6%	Timeplex	8%	Advanced Computer	4%	Advanced Computer	2%	David Systems	5%
Brightwork	4%	Hughes LAN	5%	Brightwork	2%	American Power Conversion	2%	Timeplex	5%
Hughes LAN	3%	Cisco	3%	Hughes LAN	2%	Brightwork	2%	Advanced Computer	3%
Advanced Computer	2%	David	3%	Networth	2%	Cisco	2%	Networth	3%
American Power Conversion	2%	Advanced Computer	2%	Proteon	2%	David	2%	Racal-Datacom Inc.	3%
		American Power Conversion	2%			Hughes LAN	2%	American Power Conversion	2%
		Networth	2%			Networth	2%	Hughes LAN	2%
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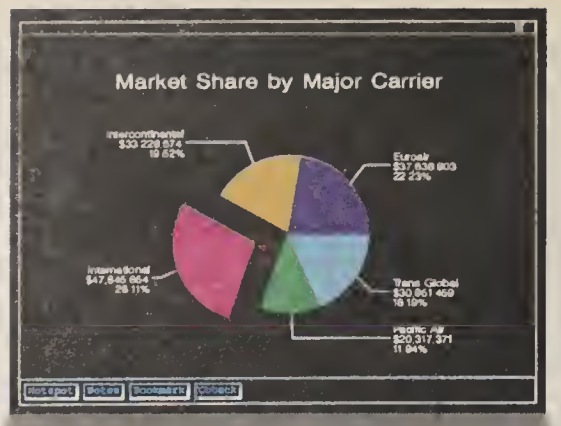

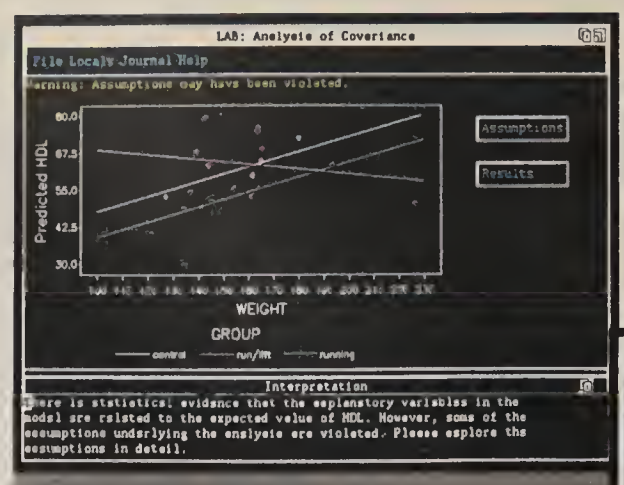

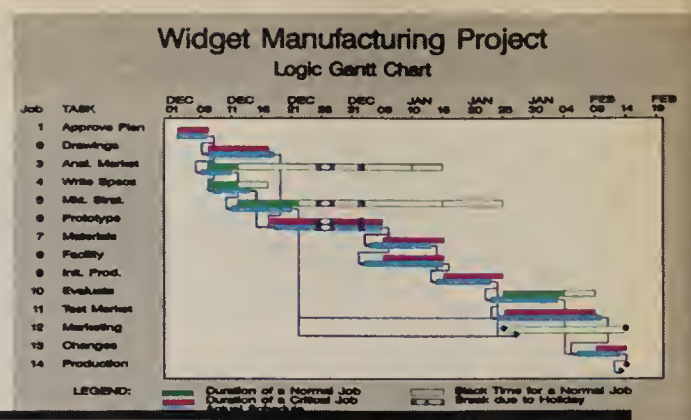

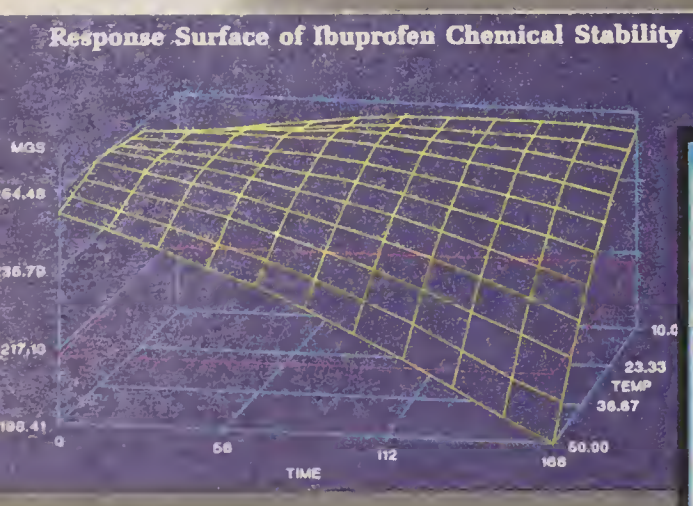

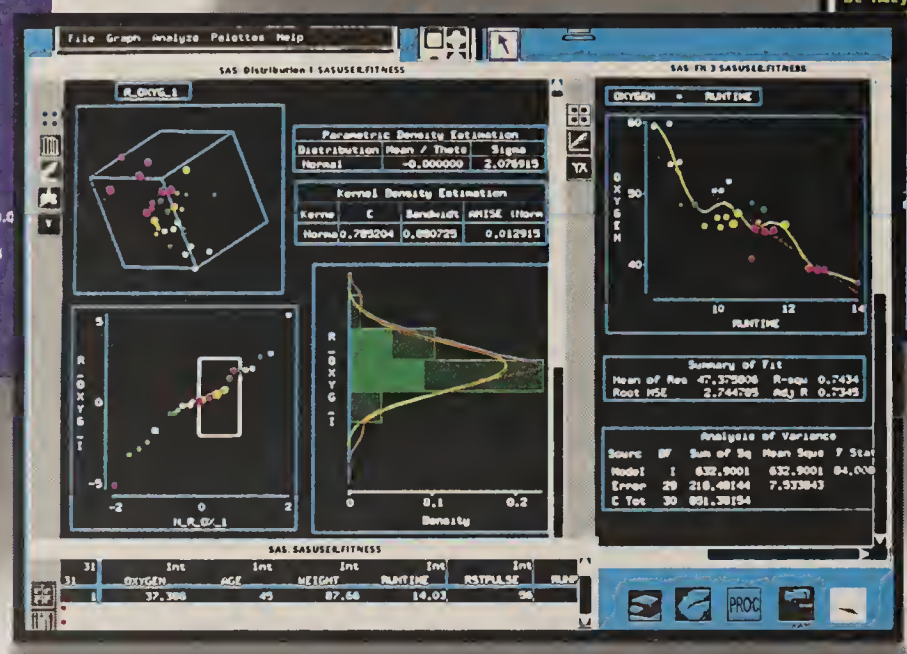

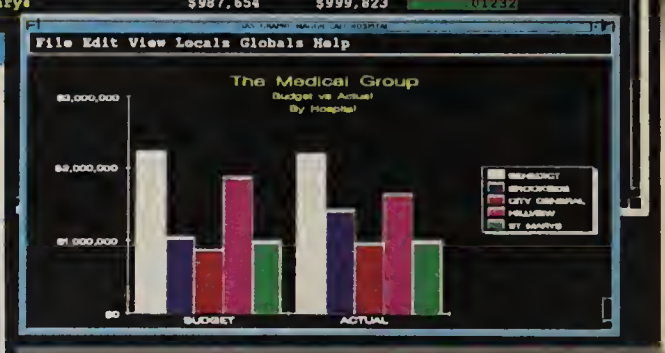

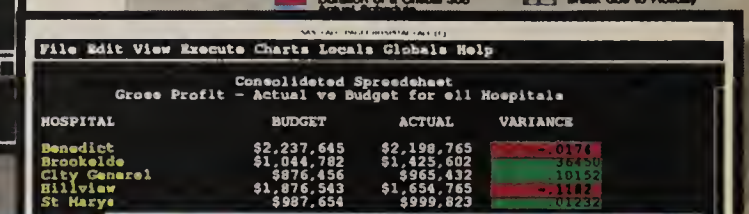

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Desktop manufacturing flavors

Finding the right method is not always easy. Here are six techniques, including pros and cons of each.

BY ANIL (NEIL) CHAUDHRY

The list of vendors in the desktop manufacturing world stands at about a dozen. Following is a description of certain leading techniques, including pros and cons:

Stereolithography apparatus

3D Systems, Inc., Valencia, Calif.

Creates a part layer by layer in a vat of photocurable liquid that hardens when hit by an ultraviolet laser.

Advantages:

- Many resins available with varying properties.
- New, patented laser scanning and part-building techniques minimize part shrinkage and distortion.
- Parts can have both internal and external contours and shapes.

Disadvantages:

- Need to build artificial structures to support certain overhanging shapes.
- Part warpage and curl possible.
- Postcuring required.

Solid base curing

Cubital America, Inc., Warren, Mich.

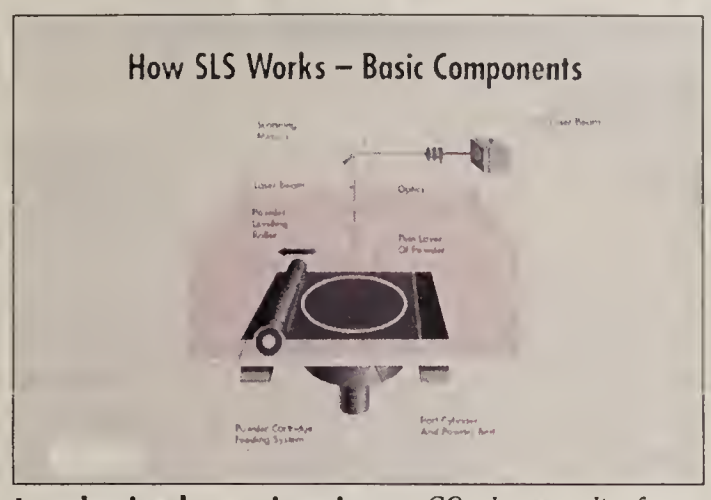
Works like a three-dimensional copying machine. It uses layer-by-layer photomasks in conjunction with a supporting wax encasement and a high-power ultraviolet lamp to expose an entire layer at a time, as opposed to tracing the profile of a layer with a laser beam as done in 3D's systems.

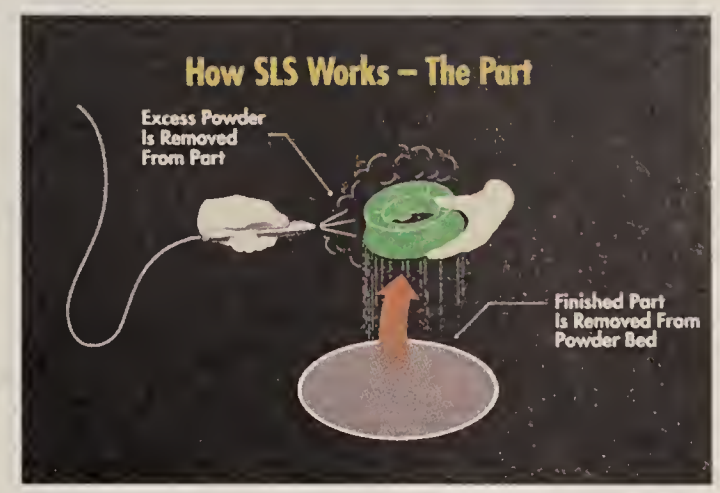
Advantages:

- Virtually no limits on part shape, including intricate part-within-part shapes (i.e., ball-bearings rotating inside a ball-bearing housing).
- Parts can be fabricated with no additional support structures.
- Liquid is cured; no postcuring needed.
- No curling, warping or swelling during fabrication.
- Entire layer-at-a-time cure process enables parts with wide cross-sections to be produced fairly quickly.

Disadvantages:

- High equipment cost: $490,000.
- Equipment is large (25 ft by 25 ft) and may require its own room. (Other equipment average: under 10 sq ft.)





In selective laser sintering, *a CO_2 laser melts, fuses and solidifies one layer of fine powder at a time until a part emerges. These systems range in price from $397,000 to $427,000.*

Laminated object manufacturing

Helisys, Inc., Torrance, Calif.

A laser cuts an adhesive-coated sheet of paper that is laminated layer by layer to make a 3-D part. Future systems may be able to use high-strength metals, composites and plastics to make rapid prototype parts.

Advantages:

- Can use a variety of thin sheet materials.
- Equipment costs are low: $85,000 to $140,000.
- Part size possibly larger than the current limit (30 in. by 20 in. by 20 in.).
- Possible to make composite parts by alternating layers of any number of materials (i.e., fibers, ceramics, metals, etc.).
- Possible to make tooling on the machine.

Disadvantages:

- Part removal is manual and delicate, as is part cleanup.
- Closed surfaces cannot be fabricated as a single piece.
- Part strength is limited — the paper can absorb moisture and cause distortion and delamination.
- Moisture absorption affects stability, part accuracy and shelf life.

Selective laser sintering

DTM Corp., Austin, Texas

A carbon dioxide laser scans a layer of fine powder. Because the powder is kept close to its melting point, it melts, fuses and solidifies wherever the laser scans. In building successive layers, the laser must penetrate to the appropriate depth to fuse the top layer and the one below.

Advantages:

- Builds wax models in a few hours from a CAD file. Wax models are used to make investment-casting ceramic shells, which in turn can be used to cast metal parts.
- Possible to make ceramic shells or even ceramic parts directly by having the incoming ceramic powders precoated with heat-fusible plastic. Metal powders, such as brass, copper and bronze, may also be sintered.
- No artificial support structures required.

Disadvantage:

- High equipment cost: roughly $400,000.

Photosolidification system

Light Sculpting, Inc., Milwaukee

A 140-watt ultraviolet lamp is used to irradiate an entire layer of liquid photopolymer through a photo mask.

Advantages:

- Low equipment cost: $99,600 to 159,500.
- Excellent for high-precision parts with small repetitive features.
- Small minimum slice thickness (.0005 in.) allows for great accuracy and surface smoothness.
- Rigid glass plate minimizes warping during the imaging process.

Disadvantages:

- Manual placement of the photomasks can be very time-consuming.
- Only one photopolymer resin is available with a limited range of properties.

Fused deposition modeling

Stratasys, Inc., Minneapolis

A filament 1.25 mm (0.050 in.) in diameter feeds into a heated extrusion head and is deposited by a precision pump.

Advantages:

- High-speed process (head goes up to 900 in./min.).
- No wasted material; parts don't require support materials or cleaning.
- Excellent for making investment-casting patterns using wax.
- Uses variety of heat-fusible thermoplastic filament materials and wax filaments.

Disadvantage:

- Part strength limited to adhesion/fusion between filaments.

Resources

The Edison Materials Technology Center (Emtec) has sponsored three international conferences on desktop manufacturing (rapid prototyping) in Dayton, Ohio. Its next conference is scheduled for June 15-17, 1993, in Dayton.

Emtec recently published a special report on the "Commercialization Opportunities for Selected Rapid Prototyping Techniques." The report is a summary of Emtec's nine-month study to review and summarize the latest developments in the desktop manufacturing industry.

You can obtain more information by calling Emtec at (513) 259-1393.

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"In computer trade press advertising, Computerworld Direct Response Cards are first in quantity and quality - and lowest in cost per qualified lead."

- Charles A. Mills
President
Firesign Computer Company

Firesign Computer Company is a data communications software developer with 17 years in the business. Having tripled in size during the past two years, this San Francisco-based company retains rep firms on the East Coast and in Europe to service a worldwide customer base that extends as far as Australia and New Zealand. For President Chuck Mills, finding new sales prospects for the company's flagship product Outbound means advertising in *Computerworld Direct Response Cards* every month.

"Outbound's claim to fame is unattended file transfer. Supporting MVS and VM mainframes and OS/2, DOS, and Windows PC networks, it is the only product whose main thrust is unattended mainframe-to-PC file transfer. Virtually invisible to the PC user, Outbound saves time, provides flexibility, and eliminates training - all while automatically ensuring consistent reliability.

"By its very nature, Outbound has a cross-industry and cross-functional appeal, with potential users ranging from mainframe network software managers to information center professionals to project analysts. So when it comes to targeting our audience, we need a broad-spectrum advertising vehicle with a broad reader base. It's no surprise, then, that *Computerworld Direct Response Cards* have proven to be our best choice.

"In computer trade press advertising, *Computerworld Direct Response Cards* are first in quantity and quality - and lowest in cost per qualified lead. They consistently generate over 70 responses every month - and a full two-thirds are very qualified leads. Some months, we've even received as many as 120 responses. On a cost-per-lead basis, *Computerworld Direct Response Cards* are also our best value dollarwise.

"As an added benefit, I see *Computerworld Direct Response Cards* having an equalizer effect. Here, unlike other advertising vehicles, companies with smaller advertising budgets like ours stand out and make just as big an impact as much larger companies. *Computerworld's* large circulation also gives us reach to the right cross-section of potential buyers. And, since we continue to receive responses for many weeks after each deck hits, we obviously benefit from both a long shelf life and an active pass-along readership.

"As long as *Computerworld Direct Response Cards* remain our top lead generator, we'll definitely maintain our advertising presence in every deck. Looking ahead, I also foresee expanding our *Computerworld Direct Response Card* advertising should we develop a new data communication software product requiring similar exposure."

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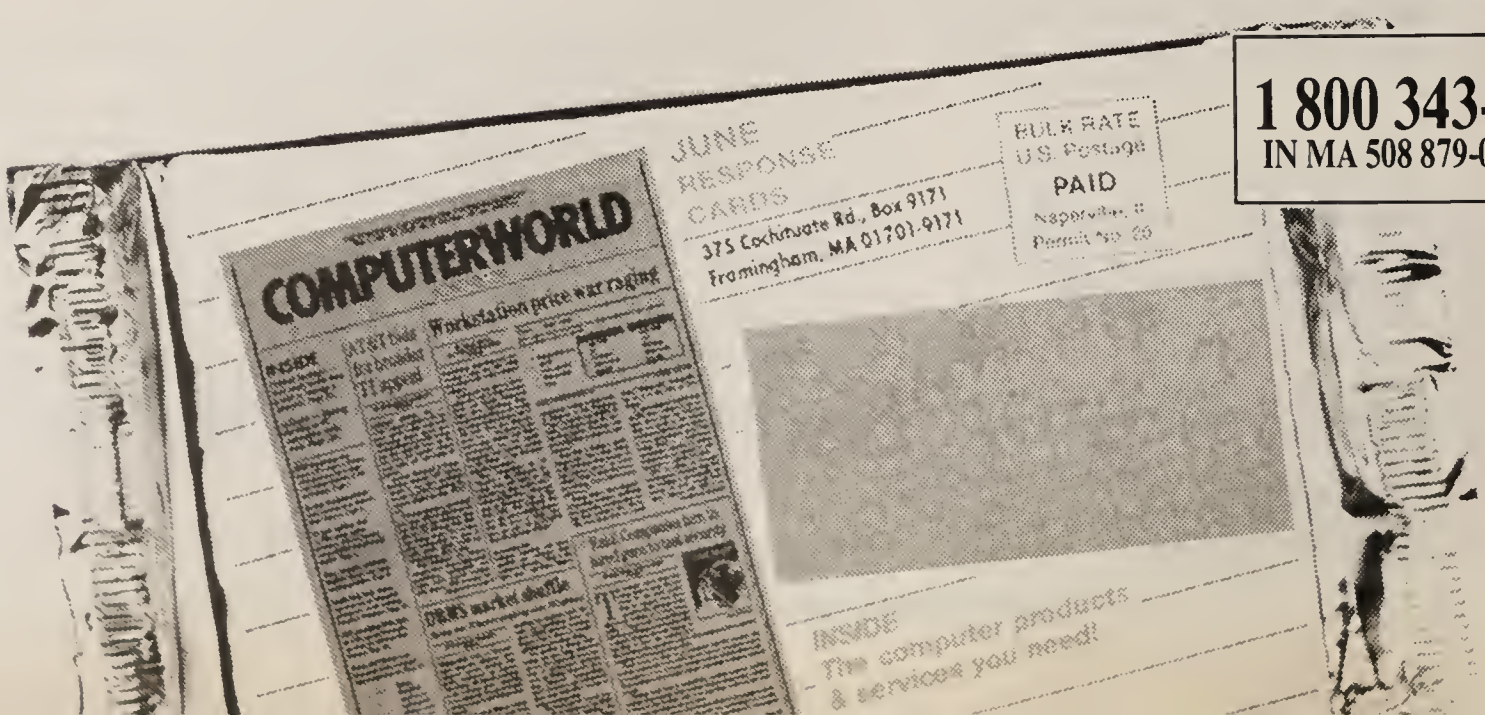

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REACHES MORE

Off-the-job training: Compete in a triathlon, race a yacht

BY SALLY CUSACK
SPECIAL TO CW

What do skydiving, sailing, rock climbing and triathloning have to do with building a career in information systems? Perhaps more than you think. According to some weekend warriors, what you do with your free time can have a real impact on your success on the job.

Peter LoConto, a systems engineer at Dun & Bradstreet Software, says skydiving has improved his self-confidence and taught him to take responsibility for his actions. His concentration is also better, he says, explaining that skydiving "improves your listening skills" by teaching you to stay completely focused on the task at hand.

LoConto, who is responsible for internal IBM MVS operating systems support at D&B Software, first tried skydiving two years ago. Since then, he says, he has been "bitten by the bug" and is working to upgrade his current student status to one of a fully certified sky diver.

For Carol J. Anderson, vice president of information technology at TTX Co. in Chicago, sailing is both a diversion and an ongoing lesson in teamwork.

An avid sailor, Anderson currently races out of the Chicago Yacht Club on Lake Michigan and maneuvers a 52-ft yacht with 14 other crew members. She likens the team sailing and racing concepts to the total quality management programs in place in many large corporations today.

"You can see the same principles applied: Every team member is vital, and ultimately, you are only as strong as your weakest link.

"In an IS department, as in sailing, everyone must be cognizant of the whole picture and be able to step into any vacated situation," she says.

One vital management lesson Anderson says she's learned from her time hauling sail is that good ideas don't always come from the top. "Many people have ideas, and in IS, as in team sailing, everyone has a stake in making decisions," she says.

Carol Anderson *likens team sailing and racing concepts to total quality management programs*

According to Harry S. Keck, there may be no better way to learn teamwork and trust than rock climbing. Keck, project coordinator at Keck & Wood, an Atlanta-based manufacturer of software applications for municipal governments, started scaling cliffs several years ago while working as a software engineer in North Carolina. He was lured into the sport by his former project leader.

Over time, the rock climbing outings improved their relationship because they were able to trust each other's judgment more and had a deepened trust in one another's capabilities.

In the same way that Keck needs to trust the team leader and depend on other members of the group when rock climbing, he says he's learned to place more faith in the members of the software development team he leads.

"Rock climbing, where you are literally linked to one another on the edge of a mountain, really helps you learn to trust and depend on others," Keck says.

One sport may not be enough for everyone. In fact, two sports may not even be enough. Mike Llerande, who is local-area network manager at Union Ink Co. in Ridgefield, N.J., pursues three sports simultaneously: swimming, biking and running. Llerande began training as a triathlete 10 years ago. He says once when he was out of work for an eight-month period, heavy training was a terrific way to relieve stress.

However, triathlon competition isn't just a release for Llerande. It also helps his career. When he worked as a programmer/analyst at a Fortune 500 company on the West Coast, for example, a lot of problems were solved after work in this totally unrelated environment.

"The results were better for both my job and my training. It gave me a better balance — a better synergy," he says.

While Llerande doesn't compete professionally anymore, he still trains and coaches other triathletes. The coaching allows him to take a cerebral approach to what he has been doing physically for so long, Llerande says. As a LAN manager, it's helped him explain things that have always been second nature to him to others.

IS professionals who engage in both competitive and noncompetitive activities in their private lives agree that these extracurricular pursuits enhance their working lives. Take a hike or jump in a lake, they say. It will do your career in information systems a world of good.

Cusack is a free-lance writer based in Marstons Mills, Mass.

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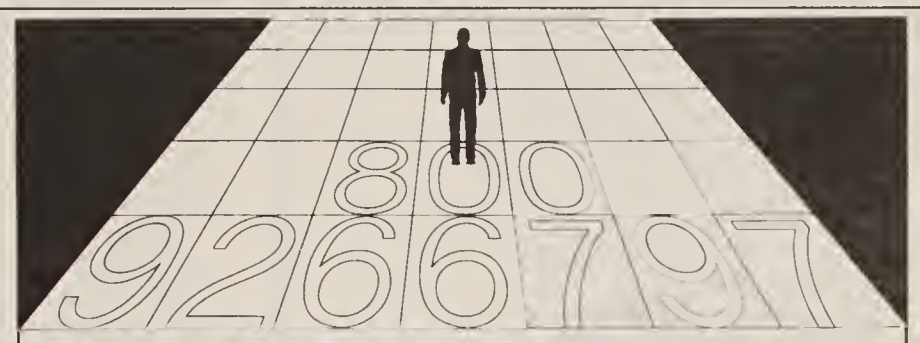

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Testing pros: Stay sharp technically

Fast Track is a twice-monthly column dedicated to answering questions on career directions. This week's guest adviser is Jim Parker, a senior recruiter at Technical Connections, Inc., a Los Angeles-based executive search firm specializing in the placement of computer professionals.

Q I have 16 years of information systems experience, and my specialty is testing. I'd like to update my skills with current technology, but I don't know how much I should absorb because I'll only be using these technologies in an ancillary way. What do you suggest?

A Staying sharp technically is a must for testing professionals. Ignoring emerging trends and technologies will significantly diminish your market value.

Progressive companies treat the testing staff as integral members of the development process and involve them in initial project planning. Insert yourself early in this development process, where most technology evaluations are made. Maintain close working relationships with the developers to enhance your knowledge of their tools.

Q I'm a senior programmer analyst at a large manufacturing company. While I still have my job, the company is laying people off. How can I make sure my luck doesn't run out?

A If you have managed your career by gaining skills that are in demand, and if you are flexible, there will always be a job available for you. The time to plan for your next job is while you're still in your current position.

Keep your contacts open both within and outside your company. If you think a layoff is approaching, let your network know that you are looking for another position. The rules have definitely changed. Job security no longer comes from your company; rather, it comes from having the right skill set at the right time.

FAST TRACK
CAREER ADVICE FOR THE '90s

Q I've been a systems analyst at a financial institution for four years. When my manager accepted early retirement two years ago, I assumed responsibility for the system he supported. But my company recruited from outside to fill his position.

His replacement has been promoted twice since then, while I've been ignored. How can I get my employer to notice my accomplishments and promote me, too?

A Your situation needs immediate attention. Filling management positions from outside the company without reason can be demoralizing to staff members, who perceive a limited career path. Does management view you as unqualified? Are your accomplishments truly outstanding and critical?

Approach your manager with your concerns to determine exactly why you weren't promoted. Work with him to develop a plan for correcting any deficiencies. Then, meet regularly with your manager to review your progress. And when the next position becomes available, tell him directly and early that you want to be considered.

Q I am a computer support trainer and specialist at a large law firm, but I'm interested in going into programming. With all the various languages, I'm not sure what is the best approach to take. What language do you recommend I learn to get started?

A Professional programming is far more than just learning a language. You should take an introductory course in data processing. Along with programming, you will learn analysis, design, structured techniques and computing fundamentals. Equipped with this knowledge, you will be well prepared to learn languages.

While taking the class, network with staff programmers. Find out how your training compares with their on-the-job experiences. Then, let your manager know you're interested in an entry-level programming position.

☞ *Burned out? Grappling with work/family issues? Worried about skills stagnation? We want to hear from you about these and other issues that affect your career. Call your questions in using the Fast Track line at (508) 820-8522 or send them by fax to Kelly E. Sewell at (508) 875-8931. If we use your question, we'll send you a gift.*

TIPS for the TIMES

How to cope with endless change requests from users

➤ We don't accept change requests from users. Instead, we ask for a description of the problem. Many times users give us their idea of a request for a change. But, not being analysts, the solution doesn't really meet their needs. We turn that around by asking them to explain the problem. Then we work with the user to resolve it.

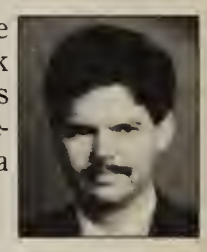
Dale Woodland, manager of advanced planning
Loral Data Systems, Sarasota, Fla.

➤ We have developed a steering committee comprised of people from the user community. Each user group has a representative on the committee. The committee is responsible for prioritizing requests, and we act according to their priorities.

Julie Denison, project leader, applications programming
Anitec Image Corp., Binghamton, N.Y.

➤ User requests can usually be dealt with by using a report writer or utility program. Often the user wants a different format, criteria or data for a report. Our staff works with report writers and utilities to handle these requests.

Bill Walton, director of IS
Habitat for Humanity International
Americus, Ga.



➤ It is a matter of trying to coordinate, prioritize and schedule the work. To do this we try to look at the cost benefit of each request — how it adds value to each system compared to other requests. The value measurement can be either a cost benefit or improved service to our user.

RandyWinkelman,
systems development manager
Black Hills Power & Light Co., Rapid City, S.D.

➤ I meet with the user to try to figure out what business function he is addressing. Then I look at other departments to see if they have similar needs and if we could coordinate activity.

Greg Braginsky,
Systems and application programming supervisor
Augsburg Fortress Publishers Co., Minneapolis

Compiled by Emily Leinfuss, a free-lance writer in Sarasota, Fla.

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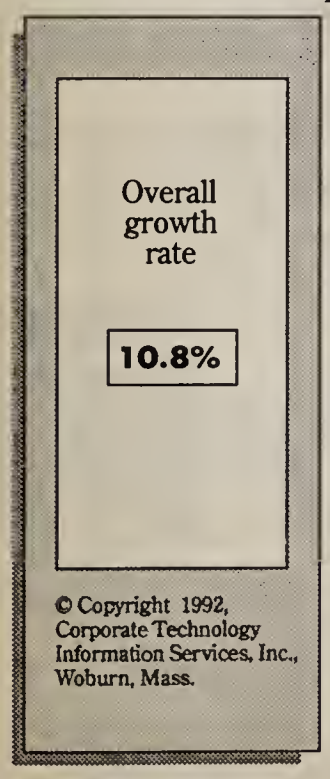

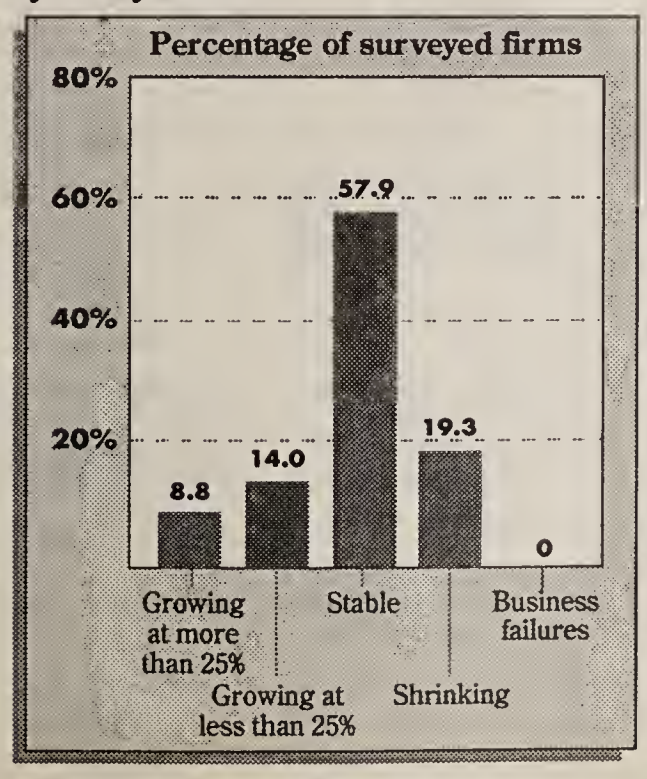

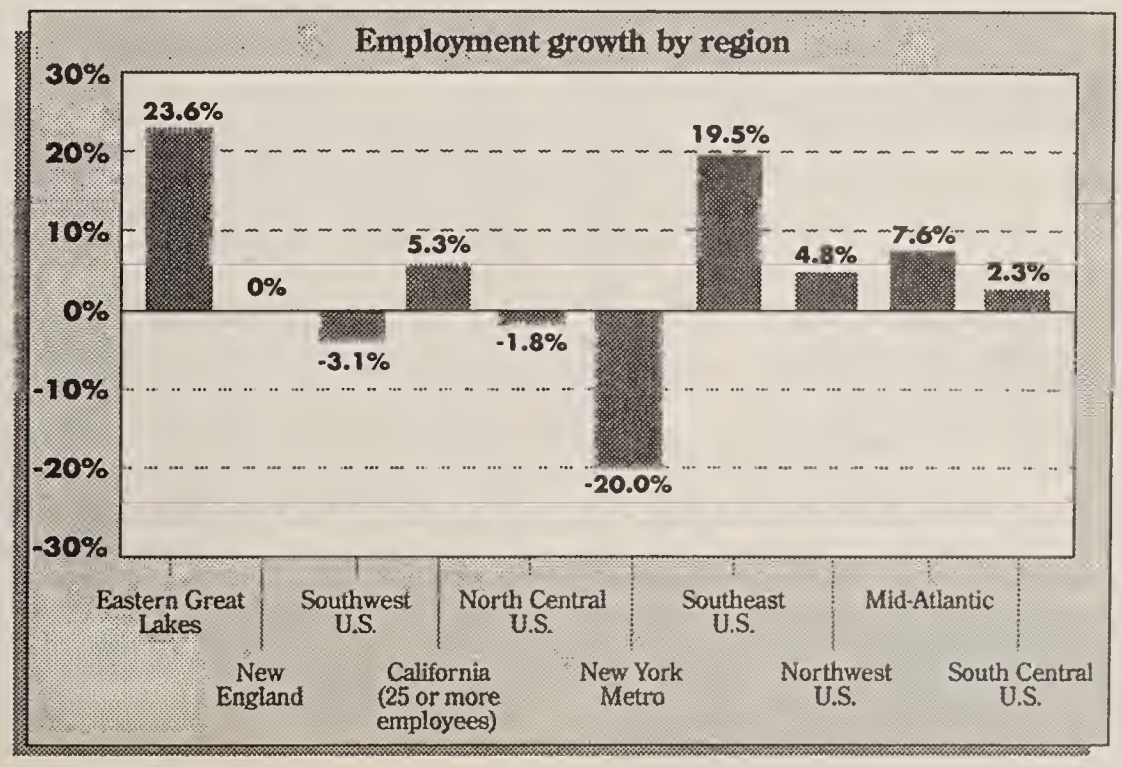

Don't take 'no' for an answer

BY ALICE BREDIN
SPECIAL TO CW

There you are, closing in on a deal. But when the subject of maintenance comes up, the vendor insists on charging you during the warranty period. You refuse to pay and ask for a break. The vendor says, "We can't."

You may think your back is against the wall, but veteran negotiators say there are ways to get around a "no." In fact, good negotiators are used to dealing with these situations.

"If you are doing a good job of pursuing your goals in negotiations, there will be some 'no's,'" says Joe Auer, president of International Computer Negotiations, Inc. in Winter Park, Fla., a consultancy that helps companies negotiate better deals with high-tech vendors. "If you haven't heard a 'no,' you've left something on the table."

One way to turn a "no" into a "yes" is to investigate the refusal. Is the "no" in response to the request or the concept? For example, if a vendor wants to charge maintenance during the warranty period, you should ask what the problem is.

"The vendor might say, 'Field engineering has to get its money one way or another, so we cannot give away service fees,'" Auer says. "In that situation, you can arrange to pay for the first year [of maintenance] and get credit on software."

Some buyers research what other vendors offer. Carl Schwimmer, director of administration at the College of Business Administration at Northern Arizona University in Flagstaff, tries to have an ace in the hole — the name of another vendor that will do what he wants.

A twist on Schwimmer's approach: Find out how flexible the vendor has been in previous deals by calling some of its customers. It would be difficult for the vendor to turn you down if you can cite a precedent that the vendor representative may not know about if it is outside his region.

The most likely way to do this is by attending conferences and seminars and asking attendees about their negotiating strategies. For serious bargain hunters, on-line negotiating networks are available for buyers to trade tips and techniques electronically.

A formal part of some buyers' negotiating strategy is calling the deal off if they hear "We can't."

"If a vendor is going to be hard and fast, you have to play hard ball," says Edward Barrow, director of the corporate data center at Occidental Petroleum Corp. in Tulsa, Okla. "Tell them you are going to walk. Say, 'I guess that means we cannot do business.'"

Barrow adopted this approach because, he says, compromising usually means you don't meet your objectives. He notes, however, that in 80% to 90% of the deals, the vendor calls back and says "We can."

"It's surprising how fast the phone rings back, especially if they've been at it for a while," Barrow says.

This hard-nosed approach only works if the technical people testing the product don't give the vendor an advantage by letting on how interested their firm is in the item. "We value their technical opinion, but we don't want them telling the vendor that we have to have it or that it's the best thing they've ever seen," Barrow says.

Good negotiating strategies and dealing with a tough bargainer start a long time before all parties sit down at the negotiating table. The best negotiators have done their homework, which puts them at the same level as the vendor.

For instance, be sure you've got plenty of options. "If you feel backed into the corner with one technology, I suggest thinking about changing technologies. It's not that hard to do in most cases," says Ned Livornese, an attorney with a high-tech private practice in Colorado Springs. Livornese also teaches courses in high-tech software negotiating strategies.

Research is especially important for smaller firms, which have less leverage than large companies. Small firms can make up for what they lack in buying power by planning a technology strategy that leaves them with many buying options. Planning is everything," Livornese says.

Bredin is a free-lance writer based in New York.

When NO means YES

- Sales reps are quick to say "we can't." When they do, buyers should go for broke and push harder. So don't be put off when you hear them say. . .
- The General Services Administration won't let us.
- We can't do it for you because we'd be setting a precedent.
- That's not the way we figured the deal.
- We have to get any changes approved by headquarters.

Source: International Computer Negotiations, Inc. "High Tech Procurement" newsletter, Winter Park, Fla.

When 'no' is OK

Part of negotiating is knowing when not to argue with a vendor's "no." These instances include the following:

➤ **Proprietary rights in software negotiating.** Software vendors see a world of limited sale opportunities for their products, so when it comes to proprietary rights, you may not have success negotiating.

➤ **Contract elements.** A vendor will not take out certain elements such as a disclaimer of warranty, an entirety clause and a clause that holds it to assuming consequential damages.

➤ **Lease negotiations.** A vendor will not remove a clause that ensures the buyer will make payments even if the equipment doesn't work.

➤ **Financial stipulations.** Vendors will sometimes refuse to bend on financial arrangements. One user negotiated with a vendor that demanded 50% payment up-front. He checked with the vendor's other customers and discovered that the firm always does business that way.

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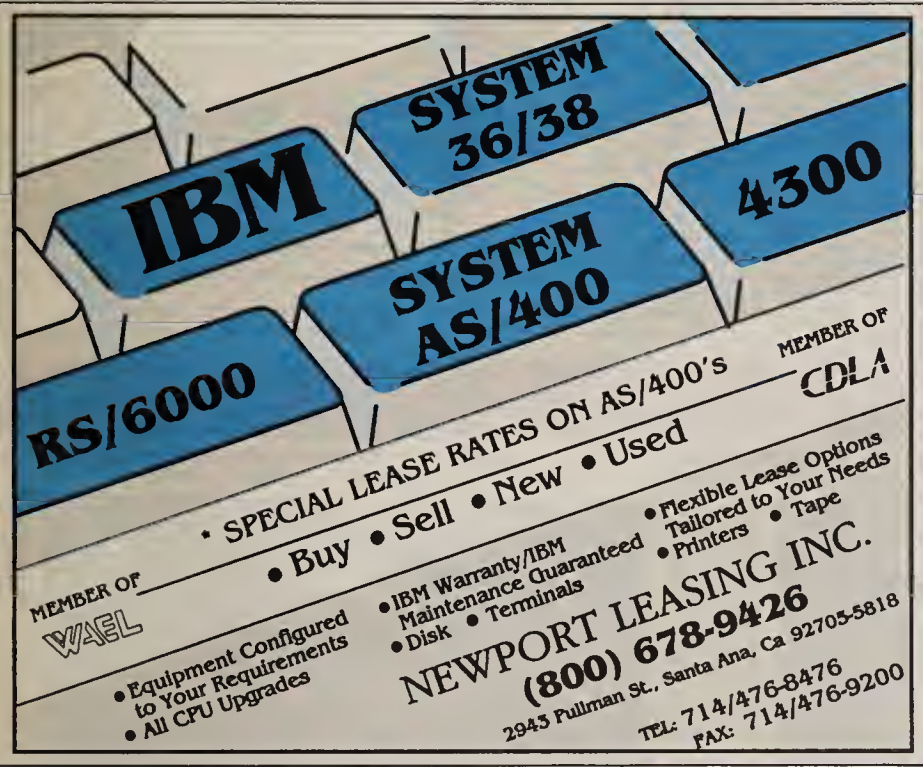

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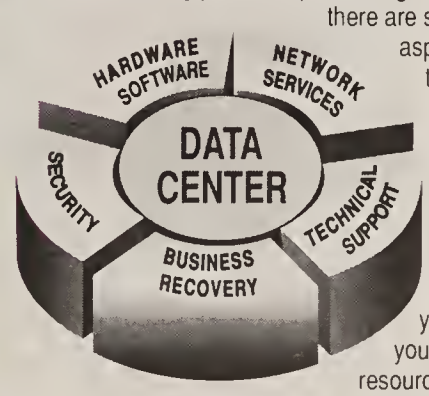

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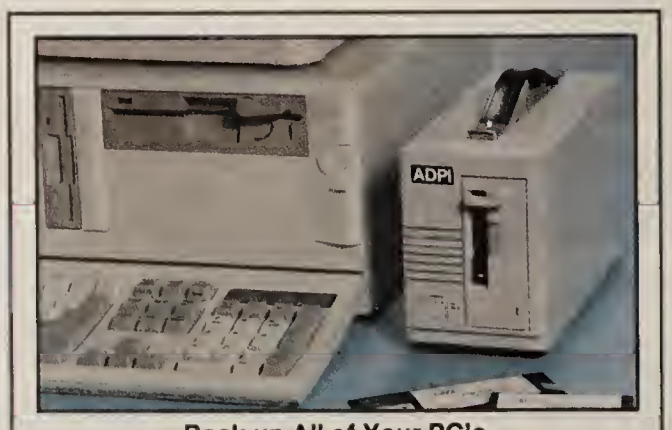

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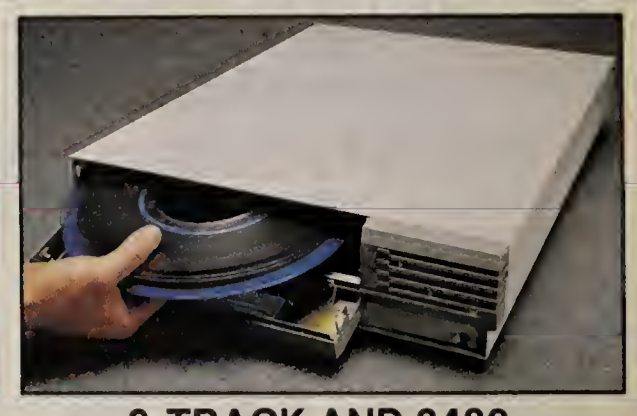

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Hardwary

Unix workstation stocks carry a mix of cautious and optimistic ratings

Sun Microsystems, Inc.	Hold	Smith Borney, Horris Uphom & Co.
	Buy	S.G. Worburg & Co.
Silicon Grophics, Inc.	Hold	Smith Borney
	Strong buy	Alex. Brown & Sons, Inc.
Intergroph Corp.	Source of funds/ Underperform	Alex. Brown & Sons

Industry Almanac

SECTOR FOCUS: DATABASE SOFTWARE FOR UNIX

The stocks of midrange and Unix database purveyors such as **Informix Corp.** (INFX) have been strong performers lately. In an Oct. 21 report, Montgomery Securities said it sees room for continued growth despite the high values these issues currently carry.

Montgomery Securities categorized these companies under "Network Computing Software," reflecting the distributed nature of their database management products.

The ongoing transition of the user population to client/server and other networked computing architectures will provide a prolonged window of opportunity for these vendors.

Montgomery Securities analysts Bill Shattuck and Doug Crook projected collective compound annual growth of more than 50% through 1996 for software vendors whose applications work across enterprise networks.

Other factors contributing to this healthy expansion include the move toward a cease-fire in the Unix wars and the growth of the database applications tools market.

The rapidly increasing ability of Unix hardware to handle industrial-strength on-line transaction processing will also open new opportunities for Unix database and tools vendors.

In addition to Informix, Montgomery Securities recommends the purchase of several stocks in this sector:

•**Oracle Corp.** (ORCL). Oracle is strongly positioned, with support for Novell, Inc.'s NetWare and IBM's OS/2 as well as Unix servers. Version 7.0 of the company's flagship relational database management system features greatly improved client/server capabilities.

•**Sybase, Inc.** (SYBS). The forthcoming Version 5.0 of the Sybase RDBMS is expected to automatically manage data that is duplicated on multiple servers for fast access (see story page 14).

•**Progress Software Corp.** (PRGS). Progress Software is approaching a new Unix product cycle. Progress applications are easily ported to new platforms, providing an advantage for users linking heterogeneous systems.

•**The ASK Group, Inc.** (ASKI). Product transitions resulted in an earnings shortfall for the company's most recent quarter.

However, Montgomery Securities said it believes the long-term outlook is bright and that the current value of the stock provides a good buying opportunity.

DEREK SLATER

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, NOVEMBER 6, 1992

TOP PERCENT GAINERS

Microcom Inc.	48.15
Easel Corp.	44.44
Kendall Square Research	29.03
CE Software	26.67
Exabyte	26.45
Bolt, Beranek & Newman	21.88
State of the Art	21.74
Cypress Semiconductor Corp	21.33

TOP PERCENT LOSERS

Sequoia Systems Inc.	-30.00
Intelligent Electronics	-18.60
Everex Systems Inc.	-14.32
CompUSA Inc.	-12.42
Cray Computer	-9.52
Meca Software	-9.09
Weitek	-7.69
Banyan Systems Inc.	-6.83

TOP DOLLAR GAINERS

Cisco Systems Inc. (H)	5.75
Newbridge Networks Corp.	4.38
Cabletron Systems (H)	4.25
System Software Assoc.	4.00
Microsoft Corp.	4.00
Exabyte	4.00
Wellfleet Communications (H)	3.88
BMC Software Inc.	3.50

TOP DOLLAR LOSERS

CompUSA Inc.	-4.88
Nynex Corp.	-4.50
Bellsouth Corp.	-2.88
American Info Techs Corp.	-2.50
Southwestern Bell Corp.	-2.38
Bell Atlantic Corp.	-2.25
Intelligent Electronics	-2.00
Sungard Data Systems	-1.75

Communications and Network Services — Up 4.95%

Exch	52-Week			Nov. 6 Close	Wk Net Change	Wk Pct Change
OTC	23.13	9.63	3 COM Corp. (H)	23.13	2.13	10.12
NYS	70.63	56.25	American Info Techs Corp.	64.25	-2.50	-3.75
NYS	45.38	32.88	AT&T	44.88	1.25	2.87
OTC	4.25	0.75	Artel Communication Corp.	1.44	0.13	9.52
OTC	22.00	10.25	Banyan Systems Inc.	18.75	-1.38	-6.83
NYS	49.75	40.25	Bell Atlantic Corp.	45.38	-2.25	-4.72
NYS	55.50	43.38	Bellsouth Corp.	48.88	-2.88	-5.56
NYS	6.75	3.63	Bolt, Beranek & Newman	4.88	0.88	21.88
NYS	72.25	36.63	Cabletron Systems (H)	72.25	4.25	6.25
OTC	31.00	17.50	Chipcom Corp.	24.00	-0.25	-1.03
OTC	65.75	24.00	Cisco Systems Inc. (H)	65.75	5.75	9.58
OTC	35.25	5.50	Compression Labs Inc.	11.63	1.38	13.41
OTC	3.38	0.88	Data Switch Corp.	2.06	0.06	3.15
NYS	23.63	13.75	Digital Comm. Assoc.	16.38	-0.38	-2.24
OTC	15.25	7.75	Digital Systems Int'l Inc.	7.88	-0.25	-3.08
OTC	18.50	3.63	DSC Communications (H)	18.50	1.25	7.25
OTC	10.88	4.75	Fibronix Int'l Inc.	6.25	-0.25	-3.85
OTC	37.50	10.50	Filenet Corp.	17.00	1.00	6.25
OTC	3.38	1.13	Gandalf Technologies Inc.	1.75	0.25	16.67
OTC	2.25	0.69	Gateway Communications	1.31	-0.06	-4.51
NYS	5.50	2.38	General Datacomm Inds.	4.63	0.63	15.63
ASE	5.88	0.94	Go Video	2.50	0.13	5.26
NYS	35.75	28.88	GTE Corp.	33.50	-0.63	-1.83
NYS	70.63	50.00	ITT Corp.	66.25	1.13	1.73
OTC	37.63	25.25	MCI Communications Corp. (H)	35.00	-1.38	-3.78
OTC	14.50	2.25	Microcom Inc.	5.00	1.63	48.15
NYS	18.25	9.50	Network Equipment Tech.	10.63	-0.75	-6.59
OTC	25.50	8.00	Network General	15.88	1.50	10.43
OTC	20.00	8.50	Network Systems Corp.	14.75	1.13	8.26
OTC	27.50	5.63	Newbridge Networks Corp.	27.50	4.38	18.92
NYS	49.25	30.50	Northern Telecom Ltd.	38.75	0.00	0.00
OTC	32.50	22.19	Novell Inc.	31.88	1.38	4.51
NYS	88.38	69.13	Nynex Corp.	79.38	-4.50	-5.37
OTC	37.50	14.50	Octel Communications Corp.	20.50	0.50	2.50
OTC	9.88	3.38	Penril Data Comm. Ntwks.	4.63	0.38	8.82
OTC	53.00	10.25	Picturetel Corp.	22.13	1.50	7.27
OTC	18.75	7.00	Proteon Inc.	9.88	1.63	19.70
NYS	30.63	13.88	Scientific Atlanta Inc. (H)	30.63	0.75	2.51
NYS	70.50	56.25	Southwestern Bell Corp.	64.38	-2.38	-3.56
NYS	26.38	20.75	Sprint Corp.	25.63	0.00	0.00
OTC	21.13	4.88	Standard Microsystems Corp	20.63	1.25	6.45
OTC	63.00	15.25	Synoptics Communications (H)	63.00	2.00	3.28
NYS	40.00	32.88	U S West Inc.	36.13	-1.13	-3.02
OTC	56.50	24.00	Wellfleet Communications (H)	56.50	3.88	7.36

PC and Workstations — Up 1.30%

OTC	13.50	3.50	Advanced Logic Research	4.50	0.50	12.50
OTC	70.00	41.50	Apple Computer Inc.	55.75	3.25	6.19
OTC	24.50	11.25	AST Research Inc.	17.88	-0.38	-2.05
NYS	19.25	6.75	Commodore Int'l	7.25	0.00	0.00
NYS	42.38	22.13	Compaq Computer Corp.	42.00	1.50	3.70
OTC	37.38	13.91	Dell Computer Corp. (H)	37.38	3.25	9.52
OTC	7.75	0.88	Everex Systems Inc.	1.13	-0.19	-14.32
NYS	34.63	21.25	Harris Corp. (H)	32.88	-1.00	-2.95
NYS	85.00	44.63	Hewlett-Packard Co.	58.63	1.75	3.08
NYS	29.75	14.13	Silicon Graphics	26.63	1.88	7.58
OTC	36.13	20.75	Sun Microsystems Inc. (H)	34.88	-0.38	-1.06
NYS	31.25	22.25	Tandy Corp.	26.25	-0.25	-0.94
NYS	11.13	5.50	Zenith Electronics	5.75	0.00	0.00
OTC	25.50	2.75	Zeos International Ltd.	4.00	-0.13	-3.03

Large Systems — Up 3.36%

ASE	20.63	7.75	Amdahl Corp.	8.75	0.63	7.69
NYS	16.38	4.75	Convex Computer	7.75	0.00	0.00
OTC	16.88	1.88	Cray Computer	4.75	-0.50	-9.52
NYS	52.25	19.00	Cray Research Inc.	21.75	0.50	2.35
NYS	18.13	7.13	Data General Corp.	10.13	-0.63	-5.81
NYS	65.50	32.88	Digital Equipment Corp.	36.75	3.00	8.89
NYS	100.75	65.00	IBM	66.25	-0.63	-0.93
OTC	13.25	5.50	Kendall Square Research	10.00	2.25	29.03
NYS	119.25	88.25	Matsushita Electronics	90.25	-0.75	-0.82
OTC	17.50	6.00	Pyramid Technology	10.00	1.25	14.29
OTC	17.88	9.88	Sequent Computer Sys.	15.50	0.88	5.98
OTC	18.38	2.75	Sequoia Systems Inc.	3.50	-1.50	-30.00
NYS	54.25	29.50	Stratus Computer Inc.	34.25	1.63	4.98
NYS	15.13	9.50	Tandem Computers Inc.	14.50	1.38	10.48
NYS	11.75	3.63	Unisys Corp.	8.63	0.25	2.99
ASE	7.50	0.25	Wang Labs Inc. (b)	0.50	0.06	14.16

Software — Up 4.69%

OTC	68.50	25.25	Adobe Systems Inc.	37.50	1.88	5.26
OTC	44.25	10.25	Aldus Corp.	15.25	-0.75	-4.69
OTC	19.75	7.00	American Software Inc.	9.00	0.75	9.09
OTC	20.00	9.75	Ask Computer Systems	17.13	1.00	6.20
OTC	53.50	23.25	Autodesk Inc.	53.50	2.75	5.42
OTC	37.75	3.75	Bachman Info. Systems	6.00	0.50	9.09
OTC	42.50	32.00	BGS Systems Inc.	37.00	-1.50	-3.90
OTC	79.00	37.25	BMC Software Inc.	63.50	3.50	5.83
OTC	25.50	12.25	Boole & Babbage (H)	24.00	-1.50	-5.88
OTC	86.75	25.25	Borland Int'l Inc.	33.50	-0.75	-2.19
OTC	10.50	3.63	CE Software	4.75	1.00	26.67
ASE	28.88	8.75	Cheyenne Software Inc. (H)	28.88	1.63	5.96
OTC	13.13	5.63	Cognos Inc.	5.88	0.00	0.00
NYS	18.88	8.63	Computer Associates (H)	18.88	1.38	7.86
NYS	12.38	4.75	Computervision Corp.	6.63	0.63	10.42
OTC	20.00	6.75	Comshare Inc.	10.50	0.25	2.44
OTC	47.88	6.00	Easel Corp.	9.75	3.00	44.44
OTC	25.00	11.50	Group I Software	15.50	2.50	19.23
OTC	6.63	3.50	Hogan Systems Inc.	6.00	0.13	2.13
OTC	36.25	18.50	Information Resources	27.38	-0.38	-1.35
OTC	31.00	5.88	Informix Corp.	29.75	1.00	3.48
OTC	22.38	11.50	Intergraph Corp.	13.25	0.25	1.92
OTC	15.00	7.00	Interleaf Inc.	11.13	-0.50	-4.30
OTC	20.25	10.25	Intersolv Inc.	14.00	-0.88	-5.88
OTC	21.38	9.50	Knowledgeware Inc.	13.75	0.50	3.77
OTC	48.25	28.75	Legent Corp.	46.25	1.75	3.93
OTC	38.75	14.75	Lotus Development	22.25	2.13	10.56
OTC	7.38	1.88	Meca Software	2.50	-0.25	-9.09
OTC	22.25	5.25	Mentor Graphics	7.25	0.00	0.00
OTC	37.38	27.25	Micro Focus	36.13	-0.50	-1.37
OTC	20.50	6.50	Micrografx Inc.	9.75	0.00	0.00
OTC	92.75	61.84	Microsoft Corp.	92.75	4.00	4.51
OTC	24.13	12.00	Oracle Corp.	24.13	1.88	8.43
OTC	53.25	19.63	Parametric Technology	50.63	-0.38	-0.74
OTC	11.00	3.50	Phoenix Technologies	4.13	0.13	3.13
OTC	25.25	11.25	Platinum Technology	18.38	-0.88	-4.55
OTC	55.50	29.00	Progress Software Corp.	53.50	0.00	0.00
OTC	26.63	4.00	Quarterdeck Office Sys.	6.13	0.25	4.26
OTC	32.75	11.75	Rainbow Technologies Inc.	23.75	0.50	2.15
OTC	22.75	4.00	Rasterops	6.25	0.00	0.00
OTC	17.25	3.63	Ross Systems	5.50	0.38	7.32
OTC	16.63	8.50	Sapiens USA Inc. (H)	16.63	0.88	5.56
OTC	26.25	6.75	Software Publishing Corp.	8.75	-0.38	-4.11
OTC	8.50	2.00	Software Toolworks Inc.	4.44	0.44	10.95
OTC	7.25	0.75	Spinnaker Software	1.75	0.25	16.67
OTC	16.50	3.25	State of the Art	7.00	1.25	21.74
NYS	25.25	13.75	Sterling Software Inc.	20.00	0.50	2.56
OTC	30.00	8.00	Struct. Dynamics Research	12.25	1.25	11.36
OTC	42.25	16.25	Sybase Inc. (H)	42.25	0.50	1.20
OTC	51.00	5.88	Symantec Corp.	12.75	0.13	0.99
NYS	15.50	5.25	Systems Center Inc.	6.63	-0.25	-3.64
OTC	34.25	15.16	System Software Assoc.	25.75	4.00	18.39
OTC	13.25	2.50	Trinzic Corp.	3.63	-0.25	-6.45
OTC	23.75	14.50	Walker Interactive Systems	18.25	-0.38	-2.01
OTC	5.50	1.50	Wordstar	1.88	0.25	15.38

Semiconductors — Up 3.59%

NYS	21.50	7.38	Advanced Micro Devices	16.25	-0.25	-1.52
NYS	12.38	7.13	Analog Devices Inc. (H)	12.00	0.00	0.00
OTC	14.25	6.75	Atmel Corp.	14.25	0.75	5.56
OTC	14.13	3.25	Chips and Technologies	4.75	0.75	18.75
NYS	19.63	7.38	Cypress Semiconductor Corp	11.38	2.00	21.33
NYS	12.88	6.75	Dallas Semiconductor	12.25	0.25	2.08
OTC	69.13	39.75	Intel Corp.	69.00	1.50	2.22
NYS	9.88	4.88	LSI Logic Corp.	8.75	0.75	9.38
NYS	22.38	12.13	Micron Technology	19.63	0.25	1.29
NYS	97.75	57.50	Motorola Inc.	96.38	0.38	0.39
NYS	14.13	4.88	National Semiconductor (H)	12.13	-0.13	-1.02
OTC	27.00	8.25	Sierra Semiconductor	13.00	0.88	7.22
NYS	51.25	26.00	Texas Instruments (H)	50.75	1.63	3.31
OTC	10.50	6.00	VLSI Technology	7.63	0.13	1.67
OTC	7.00	2.13	Weitek	4.50	-0.38	-7.69
ASE	7.25	2.00	Western Digital Corp.	7.00	0.13	1.82
OTC	31.00	14.50	Xilinx	19.50	0.75	4.00
OTC	33.50	15.00	Zilog Inc.	29.25	-1.25	-4.10

Peripherals and Subsystems — Up 4.95%

OTC	11.13	3.63	Archive Corp.	10.75	0.13	1.18
OTC	26.75	13.75	Banctec Inc.	23.88	-0.88	-3.54
OTC	23.50	9.25	Cambex Corp.	14.25	-0.50	-3.39
ASE	14.50	5.66	Cognitronics Corp.	12.63	0.38	3.06
NYS	23.88	12.50	Conner Peripherals	19.88	0.13	0.63
OTC	20.50	14.25	Data Race Inc. (H)	20.50	1.63	8.61
ASE	19.66	4.75	Dataram Corp.	8.13	0.13	1.56
NYS	24.75	8.38	EMC Corp. (H)	24.75	1.38	5.88
OTC	8.38	4.75	Emulex Corp.	7.25	1.00	16.00
OTC	23.00	13.25	Evans & Sutherland	19.00	1.75	10.14
OTC	40.63	12.00	Exabyte	19.13	4.00	26.45
OTC	35.63	15.75	Intelligent Info. Systems (H)	33.13	-0.50	-1.49
OTC	11.25	4.75	Iomega Corp.	7.88	0.38	5.00
OTC	34.75	10.25	IPL Systems Inc.	12.00	-0.50	-4.00
OTC	21.25	10.75	Komag Inc.	19.25	0.25	1.32
OTC	15.63	4.38	Maxtor Corp.	14.63	0.25	1.74
OTC	12.63	6.38	Micropolis Corp.	8.00	0.75	10.34
NYS	105.13	85.38	3M Co.	104.88	2.00	1.94
OTC	6.75	3.50	Printronix Inc.	5.25	0.50	10.53
NYS	24.00	6.88	QMS Inc.	8.00	0.25	3.23
OTC	18.00	8.88	Quantum Corp.	13.25	0.25	1.92
OTC	12.75	3.75	Radius Inc.	5.63	-0.38	-6.25
NYS	13.38	6.50	Recognition Equipment (H)	13.38	0.75	5.94
OTC	13.13	5.63	Rexon Inc.	12.50	1.63	14.94
OTC	17.63	7.75	Seagate Technology	17.00	2.13	14.29
NYS	78.00	21.00	Storage Technology	31.75	2.13	7.17
NYS	22.88	16.00	Tektronix Inc.	22.00	0.88	4.14
NYS	82.25	60.25	Xerox Corp.	75.25	1.00	1.35

Services — Up 0.05%

OTC	22.00	11.84	American Mgmt. Systems (H)	20.38	-1.38	-6.32
NYS	5.38	2.88	Anacomp Inc.	3.75	0.00	0.00
OTC	21.25	12.50	Analysts Int'l (H)	20.50	-0.75	-3.53
NYS	50.75	36.13	Auto Data Processing (H)	50.75	2.38	4.91
NYS	16.63	7.06	Ceridian Corp. (H)	16.50	0.13	0.76
NYS	23.44	12.50	Comdisco Inc.	15.00	-0.13	-0.83
OTC	13.50	6.75	Computer Horizons (L)	8.50	1.00	13.33
NYS	84.88	57.00	Computer Sciences	70.75	1.00	1.43
NYS	10.13	7.00	Computer Task Group	8.00	0.25	3.23
OTC	40.50	15.00	CompUSA Inc.	34.38	-4.88	-12.42
OTC	19.25	6.00	Corporate Software	11.75	0.88	8.05
OTC	30.75	7.75	Egghead Discount Software	10.00	0.00	0.00
NYS	33.06	25.25	General Motors E (EDS)	28.25	-0.75	-2.59
OTC	30.38	6.25	Intelligent Electronics	8.75	-2.00	-18.60
OTC	14.88	6.63	Merisel	10.25	0.13	1.23
OTC	15.75	5.75	Microage Inc. (L)	7.75	0.75	10.71
OTC	36.25	17.66	Paychex	36.25	2.25	6.62
NYS	77.50	55.00	Policy Management Sys. (H)	73.25	-1.75	-2.33
NYS	48.75	27.88	Reynolds and Reynolds (H)	48.75	3.38	7.44
OTC	32.00	22.00	SEI Corp.	27.75	0.50	1.83
OTC	24.38	16.88	Shared Medical Systems	20.38	-1.25	-5.78
OTC	30.00	16.00	Sungard Data Systems	27.25	-1.75	-6.03
NYS	3.63	1.13	Ultimate Corp.	1.25	0.00	0.00

KEY: (H) = New annual high (L) = New annual low

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Second-class postage paid at Framingham, Mass., and additional mailing offices. Computerworld (ISSN 0010-4841) is published weekly, with a single combined issue for the last week in December and the first week in January by CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171. Copyright 1992 by CW Publishing/Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased through Margaret McIndoe. Photocopy rights: permission to photocopy for internal or personal use is granted by CW Publishing/Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3.00 per copy of the article, plus $.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, MA 01970. Reprints (minimum 500 copies) and permission to reprint may be purchased from Sharon Bryant, CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $2.00 a copy: U.S. — $48 a year; Canada — $110 a year; Central & So. America — $130 (surface), $250.00 (airmail) a year; Europe — $195 a year; all other countries — $295 a year. Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Subscriptions call toll free (800) 669-1002.

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ABP ABC RED TAG

IN BRIEF

Unisys cuts health care

■ **Unisys Corp.** last week said it is phasing out full cost coverage of health care for retired employees. The Blue Bell, Pa., firm said escalating national health costs and a change in accounting has made it too expensive to continue coverage.

Under the new accounting method, Financial Accounting Standards Board Statement 109, Unisys must reserve funds on its balance sheet to cover projected health care costs of both current and future retirees.

Unisys estimated that it will take a charge of no more than $260 million in the first fiscal quarter of 1993 to cover its projected medical costs. The cumulative effect of this charge will increase net income in the quarter by $325 million to $425 million.

■ **CompUSA, Inc.**, a Dallas computer superstore retailer, reported first-quarter net profits of $1.3 million, up 48% from the same period last year. Sales increased 56% to $263.4 million in the quarter. The company's 11 new stores contributed almost half of the sales increase in the period.

■ **Wordstar International, Inc.** said it is cutting worldwide staff by 26%, to 130 employees, as part of an ongoing expense reduction plan. Wordstar, which began life as MicroPro International Corp. in 1978 and has 5 million users, has struggled during the last few years to keep pace with market leader **WordPerfect Corp.**

■ **IPL Systems, Inc.**, a Waltham, Mass.-based storage firm, said healthy demand for disk array subsystems helped boost fiscal third-quarter sales 24%, to $15.7 million. However, profits dropped 44%, to $1 million from $1.8 million, partly because of cost associated with switching from third-party to direct sales channels.

EDS still unscathed by GM cuts

Faced with heavy losses, automaker relies on subsidiary for financial help

BY MARK HALPER
CW STAFF

DETROIT — While General Motors Corp. may be looking for price or contractual concessions from subsidiary Electronic Data Systems Corp., analysts said they believe the auto giant will spare its data processing subsidiary the cuts it is inflicting on other suppliers.

That is because the faltering automaker is counting more than ever on a solid EDS and EDS stock — GM Class E — as a source of financial backing at a time when its coffers have been depleted by losses costing billions of dollars.

That outlook holds true, analysts said, through last week's management changes in which the automotive giant named a new chairman, former Procter & Gamble Co. chief John Smale; promoted GM President John Smith to the additional post of chief executive officer; and replaced EDS overseer Robert Schultz — who retired — with GM general counsel Harry Pearce. Those actions followed the resignation a week earlier of Robert Stempel, former chairman and CEO.

As Soundview Financial Corp. Vice President Chuck Phillips noted, the changes "inject an element of uncertainty — EDS knows the new guy a lot less."

But most analysts said they expect EDS' GM contracts will remain relatively unscathed under the new leadership.

Some analysts, such as Terry Quinn at Kidder Peabody & Co., suggested that GM's interest in a healthy EDS could be motivated by a desire to sell the subsidiary for a much-needed capital infusion. "GM would likely spin off the company rather than take action that would hurt EDS," Quinn said.

That scenario comes in a modified version, in which GM could have an interest in selling EDS shares down the road as a way to raise cash, observed Cato Carpenter, an analyst at Alex. Brown & Sons, Inc.

And short of any sale plans, GM — which wholly owns EDS but sells Class E stock that is based on the integrator's performance — simply needs a strong EDS stock price, analysts noted.

Less GM business

EDS, however, continues to lower the GM mix of its business. GM, which in the mid-1980s accounted for two-thirds of EDS' revenue, represented about half of its $7.1 billion in business — $3.3 billion — in the year ended Dec. 31, 1991. It is imperative that these deals remain profitable for the outsourcer, analysts said.

"GM has a lot riding on the performance of GM E stock, so EDS may continue to be a sacred cow," Carpenter said.

That observation may rub a legion of GM suppliers the wrong way. That is because new GM purchasing chief J. Ignacio Lopez de Arriortua has implemented tough cost reviews and in some cases replaced suppliers.

GM's EDS posture is a sticky wicket of business politics, analysts noted. Factors keeping GM's EDS knife in its sheath include the following:

• A 1984 master agreement that guaranteed EDS a certain profit margin on all GM business. EDS typically receives between 10% and 12% margins on its GM contracts, compared with 13% and 14% for non-GM contracts, analysts said.

• A GM stock offering early this year that gave buyers an option to convert 15 million shares of the new GM stock into GM Class E stock.

Because GM pays Class E dividends out of EDS income, the automaker is not about to make any contractual cuts that would undermine GM's EDS revenue and dampen the public's interest in buying this new EDS-linked stock, analysts said.

"They have much more riding on it now because they have a specific issue based on GM stock converting into EDS stock," Carpenter observed.

Analysts said EDS will make small price concessions on some projects if, as Anderson noted, Arriortua is to bring data processing costs down from 2½% of sales to less than 2% of sales.

GM said that while it implemented new cost review measures for EDS during the last several months, those reviews lack one element to which GM has subjected other suppliers — the prospect of replacement.

"EDS and GM are conducting benchmarks to make sure EDS is competitive," a GM spokeswoman said. While cost reviews with other suppliers have entailed inviting bidders in as possible replacements, the spokeswoman said EDS and GM are conducting their benchmark studies "without going out and quoting the business."

If EDS and GM were not linked by ownership, the shrinking auto behemoth would probably be more solicitous of EDS' competitors, noted Howard Anderson, chairman of The Yankee Group in Boston.

Safe and secure?

EDS' GM contracts may be safe, the company continues to rack up outsourcing wins and in the third quarter ending Sept. 30, it reported an impressive 15% income gain to $167.3 million.

But as with other outsourcers, the recessionary economy has strained some existing deals. Last week, a 4-year-old commercial megadeal grew questionable when the client, First City Bancorp. of Texas, filed for Chapter 11 bankruptcy protection a few days after Federal Deposit Insurance Corp. took charge of the bank.

Chuck Phillips, vice president of Soundview Financial in Stamford, Conn., noted that if the takeover and bankruptcy lead to a loss of business, EDS may actually receive a blessing in disguise. "At best, the account is break-even, and it's probably unprofitable," said Phillips, who notes that the value of the contract was adjusted downward "a couple of times" during the course of the contract.

The 10-year deal, once worth about $50 million a year, has decreased by about 20%, Phillips estimated. Such adjustments are growing more common. IBM, for instance, recently restructured its outsourcing deal with Bank South Corp. [CW, Nov. 2].

EDS earlier this year fell victim to the world of change when client Freeport-McMoRan, Inc. dropped EDS in favor of IBM and Andersen Consulting.

MARK HALPER

PC prices OK despite levies

BY MICHAEL FITZGERALD
CW STAFF

WASHINGTON, D.C. — While fears of higher systems prices have sprouted in the wake of recent antidumping tariffs imposed on Korean chip makers, price tags should remain stable, analysts and vendors said last week.

The U.S. Department of Commerce recently hit several Korean manufacturers of dynamic random-access memory (DRAM), including heavyweight Samsung Electronics Co., with a preliminary decision recommending tariffs as high as 88% on their products, because of predatory pricing practices. The decision means the Koreans must contribute the difference between their pricing and fair market value to an escrow fund that could total $450 million.

The Korean manufacturers lose the bond only if the Commerce Department and the International Trade Commission both rule that manufacturers were selling DRAMs below market value into the U.S. The Commerce Department will not rule until March 1993.

Korean companies hold some 20% of the U.S. DRAM market, according to Phoenix-based researcher In-Stat, Inc. Despite worldwide overcapacity for DRAM makers, In-Stat said some U.S. chip brokers raised prices as much as 66% in the last week.

No conscience

"There's some major profiteering going on here, where DRAM brokers with no conscience are profiting from perceived bad news," said Dean McCarron, an analyst at In-Stat. McCarron said DRAM supplies continue to be stable, and prices on DRAMs have not increased.

Small PC makers and end users should shop around because some chip brokers continue to charge market rate, McCarron said. Big companies will likely not see prices rise. IBM makes its own DRAMs and is completely unaffected by the tariffs. A spokesman at Compaq Computer Corp. said the company would simply redirect any Korean DRAMs it might purchase to its overseas facilities.

Spokesmen at Gateway 2000, Inc. in North Sioux City, S.D., and at Fountain Valley, Calif.-based Kingston Technology Corp., the biggest board maker in the country, also said their component prices should not be affected for at least the next two quarters.

Wysiwyg

FACTS 'N' FIGURES

Quattro Pro for Windows

Total lines of code:
572,316

Total keystrokes in development:
265 million

Total months in development:
31

Total number of caffeinated beverages consumed by team:
39,300

Total vacation time taken by team during two years of development:
10 weeks

GREAT NAMES

Andrew M. Prophet
President
AP Research, Cupertino, Calif.

WINNER

Best technical paper, Society for Computer Simulation:

Simulation Analysis of a Collisionless Multiple Access Protocol for a Wavelength Division Multiplexed Star-Coupled Configuration

- We'll wait for the movie

BDUs*

"One of our remote users had inadvertently turned on the key click on the keyboard, although the user didn't know what it was. Every time a key was pressed, it made a squeek noise. The user called me up to ask if we had any computer oil in stock, or if it would be OK to order some to oil her keyboard and get rid of the noise."

Bert Beadle
DP manager
Merkel Donohue

***Brain Dead Users**

THE KISS OF DEATH

"I'm probably the greatest computer genocide guy going. That's kind of a paradox. It's one of the most brutal things you can do to an engineer: kill his project. But the worst thing for an engineer is to face the market and have a product fail in the marketplace."

Gordon Bell
Former Digital Equipment Corp. engineering manager who guided the creation of the PDP-11 and VAX series

Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Dix or Jodie Naze at (800) 343-6474. If we use your ideas, we'll send you a gift.

CW Chart: Stephanie Faucher

The 5th Wave

"IT'S AN INTEGRATED SOFTWARE PACKAGE DESIGNED TO HELP UNCLUTTER YOUR LIFE."

INSIDE LINES

Multimedia-mania

Tomorrow, Apple will try to upstage today's joint Microsoft/Intel multimedia announcement by announcing QuickTime for Windows. Apple hopes its product's ability to run the growing installed base of Macintosh QuickTime applications on DOS-based PCs will keep Microsoft in catch-up mode. Microsoft's upcoming Windows for Video Computing (WFV) is a layered extension of the Windows environment that will let users run animation and full-motion video as QuickTime does. Microsoft will sell WFV in a separate shrink-wrapped package through retailers. More interesting is Intel's role in the announcement: The chip maker has reportedly built video capture and playback software that will be on display.

Cajun cravings

Apple is slated to announce a new suite of development tools at the MacIS user group conference in New Orleans this week. The tools were designed to enable IS professionals to easily build client/server applications that operate on a variety of platforms. At least nine independent software vendors — including Brio, Powersoft, Digitalk and Mitem — will stand shoulder-to-shoulder with Apple execs to announce support for the new tools.

Worse than in-laws

Intel sits atop the heap in processors right now, but its biggest customer, IBM, is ready to roll with a 100-MHz, 32-bit version of its homegrown Intel derivative chip, the SLC. The chip, which sources say has been shown to potential OEMs such as AST Research, uses clock-tripling to run at 33 MHz externally and 100 MHz internally. IBM can't sell the chip by itself, but it has been showing a chip surface-mounted on a daughterboard that basically matches the chip size.

Customer dissatisfaction

While DEC focuses on customer satisfaction, a minor uproar has been occurring on DECUServe, the network for DECUS, the DEC user society, about changes taking place in DEC's Documentation Support Service. It appears that DEC is removing volumes of documentation that had been previously available, repackaging it and then charging users for information they had been receiving as part of the service, according to Bill Mayhew, a DECUS chairman. "On the one hand, DEC is improving business practices, but on the other, there are things like this happening, and a product manager says it's a 'corporate edict.' I said, 'Where is the customer-driven company?'" Mayhew said.

Not fault tolerant

Indications are that DEC may soon shut down its fault-tolerant development unit in Marlboro, Mass., after unveiling the high-end VAX FT 810 model this month. The machine, which tops off DEC's fault-tolerant line, was due in August but was delayed when turmoil over founder Ken Olsen's resignation hit full boil. Several of the unit's 150 employees have sent resumes to rival and neighbor Stratus Computer, one analyst said.

Plans a changin'

Grid has changed its mind on its convertible pen-and-keyboard notebook computer. Instead of showing it at its shareholder meeting on Tuesday, sources near the company said, Grid will wait to release the product at Comdex/Fall '92. AST, meanwhile, is delaying its Renegade low-end product line, sources say, to work on making the systems smaller and lighter.

Computers definitely improve over time: Compaq shipped its first portable 10 years ago last Tuesday. The 20- by 8½- by 16-in. Compaq Portable PC used an Intel 16-bit 8088 processor; had 256K bytes of RAM, expandable to 640K; and had two double-sided, 5¼-in. disk drives, no hard drive and a 9-in. monochrome display. It weighed 28 pounds. Today, Compaq will ship a battery-powered notebook with a 32-bit 486SL, an active-matrix color screen, up to 200M bytes of storage and 20M bytes of RAM in a 6.4-pound package. The original portable was so successful that when Compaq finally retired the product line in 1986, the company founders formally buried the last model at Compaq headquarters. The 4/25C, by contrast, will probably be retired unceremoniously in 18 months or so. Don't bury your news, though. Phone, fax or CompuServe News Editor Alan Alper with news tips at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld's *24-hour voice-mail tip line at (508) 820-8555.*

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